Issued December 1970

SOIL SURVEY
Adams County, Mississippi

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
In cooperation with
Mississippi Agricultural Experiment Station

Major fieldwork for this soil survey was done in the period 1958–65. Soil names and descriptions were approved in 1966. Unless otherwise indicated, statements in the publication refer to conditions in the county in 1966. This survey was made cooperatively by the Soil Conservation Service and the Mississippi Agricultural Experiment Station. It is part of the technical assistance furnished to the Adams County Soil Conservation District.

Either enlarged or reduced copies of the printed soil map can be made by commercial photographers, or can be purchased, on individual order, from the Cartographic Division, Soil Conservation Service, USDA, Washington, D.C. 20250.

HOW TO USE THIS SOIL SURVEY

THIS SOIL SURVEY of Adams County contains information that can be applied in managing farms and woodlands; in selecting sites for roads, ponds, buildings, or other structures; and in judging the suitability of tracts of land for agriculture, industry, or recreation.

Locating Soils

All of the soils of Adams County are shown on the detailed map at the back of this survey. This map consists of many sheets that are made from aerial photographs. Each sheet is numbered to correspond with numbers shown on the Index to Map Sheets.

On each sheet of the detailed map, soil areas are outlined and are identified by symbol. All areas marked with the same symbol are the same kind of soil. The soil symbol is inside the area if there is enough room; otherwise, it is outside and a pointer shows where the symbol belongs.

Finding and Using Information

The "Guide to Mapping Units" can be used to find information in the survey. This guide lists all of the soils of the county in alphabetic order by map symbol. It shows the page where each kind of soil is described and the page for the capability unit. It also shows the woodland group, woodland forage site, and the wildlife suitability group in which the soil has been placed.

Interpretations not included in the text can be developed by using the soil map and information in the text. Translucent material can be used as an overlay over the soil map and colored to show soils that have the same limitation or suitability. For example, soils that have a slight limitation for a given use can be colored green, those with a moderate limitation can be colored yellow, and those with a severe limitation can be colored red.

Farmers and those who work with farmers can learn about use and management of the soils in the soil descriptions and in the discussions of the capability units, woodland suitability groups, woodland forage sites, and wildlife suitability groups.

Foresters and others can refer to the section "Use of Soils as Woodland," where the soils of the county are grouped according to their suitability for trees.

Farmers and others interested in the use of woodland for grazing livestock can find under "Use of Soils for Woodland Grazing," groupings of the soils according to their suitability for woodland forage and also some of the plants that grow on each woodland forage site.

Game managers, sportsmen, and others concerned with wildlife will find information about soils and wildlife in the section "Use of Soils for Wildlife and Fish."

Engineers and builders will find under "Engineering Uses of Soils" tables that give engineering descriptions of the soils in the county and that name soil features that affect engineering practices and structures.

Scientists and others can read about how the soils are formed and how they are classified in the section "Formation and Classification of Soils."

Newcomers in Adams County may be especially interested in the section "General Soil Map," where broad patterns of soils are described. They may also be interested in the section "General Nature of the County."

Cover picture: Summer pasture on Memphis silt loam, 0 to 2 percent slopes.

U.S. GOVERNMENT PRINTING OFFICE: 1970

For sale by the Superintendent of Documents, U.S. Government Printing Office
Washington, D.C. 20402

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Issued December 1969

SOIL SURVEY OF ADAMS COUNTY, MISSISSIPPI

FIELDWORK BY WILLIAM M. MORRIS, JR., ALLEN C. MILBRANDT, AND ALBERT R. LEGGETT, SOIL CONSERVATION SERVICE

SURVEY BY WILLIAM M. MORRIS, JR.

UNITED STATES DEPARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE, IN COOPERATION WITH THE MISSISSIPPI AGRICULTURAL EXPERIMENT STATION

ADAMS COUNTY, in the southwestern part of Mississippi (fig. 1), has a land area of 286,720 acres, or 448 square miles. It is bordered on the west by the Mississippi River, except for a small part that lies west of the river and is bordered by the State of Louisiana. Natchez, the county seat, is in the west-central part of the county.

Beef cattle and forest products are the chief sources of agricultural income in Adams County. Field crops are a secondary source. Industry and oil produce more income than farming. Rubber plants and wood-using plants are the largest industrial installations in the county. Many employees of industrial plants are also part-time farmers.

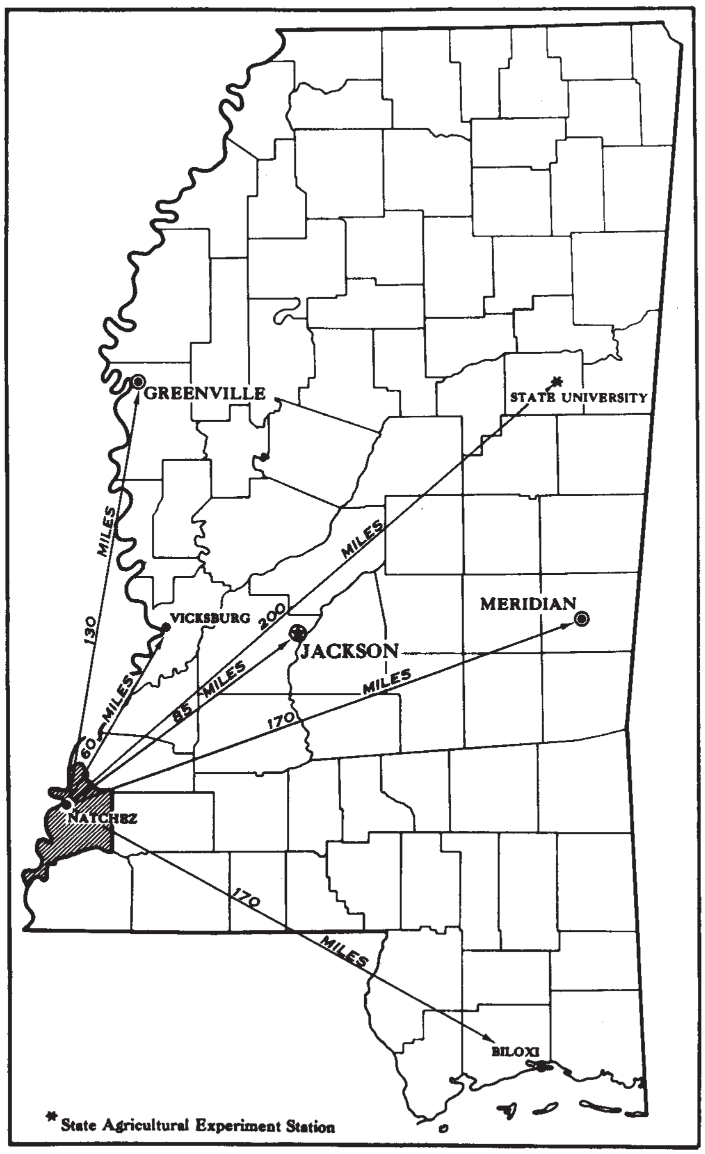

Figure 1.—Location of Adams County in Mississippi.

How This Survey Was Made

Soil scientists made this survey to learn what kinds of soils are in Adams County, where they are located, and how they can be used.

They went into the county knowing they likely would find many soils they had already seen, and perhaps some they had not. As they traveled over the county, they observed steepness, length, and shape of slopes, size and speed of streams; kinds of native plants or crops; kinds of rock; and many facts about the soils. They dug many holes to expose soil profiles. A profile is the sequence of natural layers, or horizons, in a soil; it extends from the surface down to the soil material or rock material that has not been changed much by leaching or roots of plants.

The soil scientists made comparisons among the profiles they studied, and they compared these profiles with those in counties nearby and in places more distant. They classified and named the soils according to nationwide, uniform procedures. To use this survey efficiently, it is necessary to know the kinds of groupings most used in a local soil classification.

Soils that have profiles almost alike make up a soil series. Except for different texture in the surface layer, all the soils of one series have major horizons that are similar in thickness, arrangement, and other important characteristics. Each soil series is named for a town or other geographic feature near the place where a soil of that series was first observed and mapped. Bruin and Memphis, for example, are the names of two soil series. All the

soils in the United States having the same series name are essentially alike in those characteristics that go with their behavior in the natural, untouched landscape. Soils of one series can differ somewhat in texture of the surface layer and in slope, stoniness, or some other characteristic that affects use of the soils by man.

Many soil series contain soils that differ in texture of their surface layer. According to such differences in texture, separations called soil types are made. Within a series all the soils having a surface layer of the same texture belong to one soil type. Bruin silt loam and Bruin silty clay loam are two soil types in the Bruin series. The difference in texture of their surface layers is apparent from their names.

Some types vary so much in slope, degree of erosion, number and size of stones, or some other feature affecting their use, that practical suggestions about their management could not be made if they were shown on the soil map as one unit. Such soil types are divided into phases. The name of a soil phase indicates a feature that affects management. For example, Memphis silt loam, 0 to 2 percent slopes, is one of several phases of Memphis silt loam, a soil type that ranges from nearly level to very steep.

After a guide for classifying and naming the soils had been worked out, the soil scientists drew the boundaries of the individual soils on aerial photographs. These photographs show woodland, buildings, field borders, roads, trees, and other details that greatly help in drawing boundaries accurately. The soil map at the back of this soil survey was prepared from the aerial photographs.

The areas shown on a soil map are called mapping units. On most maps detailed enough to be useful in planning management of farms and fields, a mapping unit is nearly equivalent to a soil type or a phase of a soil type. It is not exactly equivalent, because it is not practical to show on such a map all the small, scattered bits of soil of some other kinds that have been seen within an area that is dominantly of a recognized soil type or soil phase.

In preparing some detailed maps, the soil scientists have a problem of delineating areas where different kinds of soils are so intricately mixed, and so small in size that it is not practical to show them separately on the map. Therefore, they show this mixture of soils as one mapping unit and call it a soil complex. Ordinarily, a soil complex is named for the major kinds of soil in it, for example, Memphis-Natchez complex, 17 to 60 percent slopes.

Some mapping units contain more than one kind of soil in a pattern more open and less intricate than that of a soil complex. Such a mapping unit is called a soil association. A soil association differs from a soil complex in that its component soils can be mapped separately, at ordinary scales such as 4 inches per mile, if practical advantages make the effort worthwhile. A soil association, like a soil complex, is named for the major soils in it, for example, Memphis-Susquehanna association, hilly. The composition of mapping units named as associations is more variable than that of the other mapping units but has been controlled well enough to allow interpretations for the expected uses of the soils.

In some places two or more similar soils are mapped as a single unit, called an undifferentiated soil group, if the differences between the soils are too small to justify separate mapping. An example in this county is Bruno and Vicksburg soils.

Most soil surveys include areas where the soil material is so rocky, so shallow, or so frequently worked by wind and water that it cannot be classified by soil series. These areas are shown on the map like other mapping units, but are given descriptive names, such as Gullied land, and are called land types.

While a soil survey is in progress, samples of soils are taken, as needed, for laboratory measurements and for engineering tests. Laboratory data from the same kinds of soils in other places are assembled. Data on yields of crops under defined practices are assembled from farm records and from field or plot experiments on the same kinds of soils. Yields under defined management are estimated for most of the soils in the county.

But only a part of a soil survey is done when the soils have been named, described, and delineated on the map, and the laboratory data and yield data have been assembled. The mass of detailed information then needs to be organized in a way that it is readily useful to different groups of readers, among them farmers, managers of woodland, engineers, and homeowners. Grouping soils that are similar in suitability for each specified use is the method of organization commonly used in the soil surveys. On the basis of the yield and practice tables and other data, the soil scientists set up trial groups, and then test these by further study and by consultation with farmers, agronomists, engineers, and others. The scientists adjust the groups according to the results of their studies and consultations. Thus, the groups that are finally evolved reflect up-to-date knowledge of the soils and their behavior under present methods of use and management.

General Soil Map

The general soil map at the back of this survey shows, in color, the soil associations in Adams County. A soil association is a landscape that has a distinctive proportional pattern of soils. It normally consists of one or more major soils and at least one minor soil, and it is named for the major soils. The soils in one association may occur in another, but in a different pattern.

A map showing soil associations is useful to people who want a general idea of the soils in a county, who want to compare different parts of a county, or who want to know the location of large tracts that are suitable for a certain kind of farming or other land use. Such a map is not suitable for planning the management of a farm or field, because the soils in any one association ordinarily differ in slope, depth, stoniness, drainage, and other characteristics that affect management.

The eight soil associations in the county are described in the following pages. The terms for texture—"sandy," "loamy," "silty," or "clayey"—used in the title of the soil associations apply to the surface layer.

1. Memphis Association

Deep, well-drained, nearly level to steep, silty soils

This soil association consists of nearly level to steep soils and is in a single area that covers about 49 percent of the

county and that is dominant in the central part. Slopes range from 0 to 60 percent but are mainly 12 to 25 percent.

The Memphis soils make up about 88 percent of the association, and minor soils make up the remaining 12 percent.

The Memphis soils are deep, well drained, and nearly level to steep. They have a surface layer of brown silt loam 3 to 12 inches thick and a subsoil of brown silty clay loam to silt loam.

The minor soils in this association include the somewhat poorly drained Tippo and Falaya soils and the moderately well drained Collins soils. These soils occur in valleys and on low terraces.

Most of this association is in trees, but some areas on wide ridges and on terraces have been cleared and are used for crops and pasture. Gravel has been mined for commercial use in some areas. This gravel, however, is covered with a thick overburden of silt. The nearly level to moderately sloping soils of this association are well suited to the commonly grown crops and grasses. The steep soils are well suited to trees. They also can be developed for horseback riding, hunting, camping, and other recreational activities.

The Memphis soils that have slopes of less than 5 percent have few limitations to use for residential or industrial development. Land smoothing is about all that is necessary before foundations for light buildings are laid. On the somewhat poorly drained Tippo and Falaya soils, drainage and the disposing of the effluent from septic tanks are difficult. Steep soils have severe limitations for use in residential or industrial development. Extensive site preparation, such as cutting, filling, and smoothing for foundations, is necessary. Fills made of Memphis soils are likely to slip unless they are compacted at optimum moisture content.

2. Gullied Land-Natchez-Memphis Association

Severely gullied areas and deep, well-drained, sloping to steep, silty soils

This soil association is in areas where deep, wide gullies and steep, rough hills are dominant. It is adjacent to the flood plains of the Mississippi River. Slopes range from 12 to 60 percent. This association covers about 8 percent of the county.

Gullied land makes up about 65 percent of this association; Natchez soils, about 23 percent; and Memphis soils, the remaining 12 percent.

Gullied land lies between the ridges in this association. The gullies are at intervals of about 200 feet and are 50 to 200 feet deep and 50 to 300 feet wide. The soil material is mostly silty, but it is sandy and silty where the gullies are deeper and wider.

Natchez soils are on side slopes. They are deep, well-drained, steep soils that formed in thick beds of silt. They have a brown silt loam surface layer and subsoil. The surface layer is about 4 to 6 inches thick.

Memphis soils occur on the upper slopes and ridges. They are deep, well-drained soils that formed in thick deposits of silty material. These soils have a surface layer of brown silt loam about 4 inches thick and a subsoil of brown silty clay loam, heavy silt loam, and silt loam.

This association is wooded. Although the soils are fertile, they are too steep and rough for cultivation. They can be developed for hunting, hiking, camping, and other recreational activities.

The dominant soils in this association have severe limitations for use in residential or industrial development. Extensive site preparation, such as cutting, filling, and smoothing for foundations, is necessary. Fills are likely to slip unless these soils are compacted at optimum moisture content.

3. Memphis-Lucy Association

Well-drained, sloping to steep, silty and sandy soils

This association consists of sloping to steep soils that occur on long, narrow ridges and in valleys in the eastern part of the county. The ridges break to side slopes that range from 8 to 45 percent. This association covers about 8 percent of the county.

The Memphis soils make up about 40 percent of the association; Lucy soils, about 30 percent; and minor soils, the remaining 30 percent.

The Memphis soils occur on the upper parts of slopes and on ridges. They are deep, well-drained soils that formed in thick deposits of silty material. They have a brown silt loam surface layer about 4 inches thick and a subsoil of brown silty clay loam, heavy silt loam, and silt loam.

The Lucy soils occur on the middle parts of slopes. They are also well drained but formed in sandy material. Their surface layer is dark grayish-brown to pale-brown and yellowish-brown loamy fine sand about 27 inches thick. The subsoil extends to a depth of 60 inches or more and is yellowish-red sandy clay loam and heavy fine sandy loam.

The minor soils in this association include the moderately well drained Collins and the well drained Vicksburg soils that occur in the valleys and the somewhat poorly drained Susquehanna soils that occur on the side slopes.

Most of this association is in stands of mixed pines and hardwoods. The major soils are too steep for cultivation but are well suited as woodland. Of the minor soils, the Collins and Vicksburg are well suited to cultivated crops, but the Susquehanna are too clayey in the subsoil. The soils in wooded areas can be developed for hunting, horseback riding, camping, and other recreational activities.

The major soils in this association have severe limitations for residential or industrial development. Extensive site preparation, such as cutting, filling, and smoothing for foundations, is necessary.

4. Falaya-Collins Association

Somewhat poorly drained and moderately well drained, silty, acid soils

This soil association consists of nearly level soils in long, broad areas along the major creeks. These soils are susceptible to moderate flooding that generally occurs in winter. The association covers about 9 percent of the county.

The Falaya soils make up about 50 percent of the association; the Collins soils, about 20 percent; and minor soils, the remaining 30 percent.

The Falaya soils occur on large flats in thick beds of silty alluvium. They are somewhat poorly drained. Falaya

soils have a brown silt loam surface layer about 10 inches thick. This layer is underlain by light brownish-gray and light-gray silt loam that is mottled with shades of gray and brown.

The Collins soils occur on natural levees near streams. They also formed in thick beds of silty alluvium but are moderately well drained. Collins soils have a brown silt loam surface layer 10 inches thick. It is underlain by brown and dark-brown silt loam that extends to a depth of 27 inches.

The minor soils in the association are the well-drained Vicksburg, the poorly drained Waverly, and the excessively drained Bruno and Crevasse soils. These soils generally occur near the mouth of the valleys.

This association is used for pasture, row crops, and trees. All of the soils except the minor Bruno and Crevasse are moderately high in natural fertility and are suited to most of the commonly grown crops, grasses, and trees. Areas suitable for hunting, hiking, camping, and other recreational activity can be developed if protection from flooding is adequate.

Flooding and poor drainage limit the use of the soils in this association for residential or industrial development, but the soils can be used for both purposes if they are adequately drained and protected.

5. Convent-Adler Association

Somewhat poorly drained and moderately well drained, silty, nonacid soils

This soil association consists of nearly level soils that occur in broad areas on flood plains in the northern, western, and southern parts of the county. These soils lie between the bluffs and slack water clayey areas. The association covers about 3 percent of the county.

The Convent soils make up about 48 percent of the association; Adler soils, about 45; and minor soils, the remaining 7 percent.

The Convent soils are somewhat poorly drained and formed in thick beds of nonacid silty alluvium. They have a brown silt loam surface layer about 8 inches thick. It is underlain by mottled dark grayish-brown silt loam.

Adler soils occur in the higher areas of this association. They are moderately well drained soils that formed in thick beds of nonacid silty alluvium. Adler soils have a grayish-brown silt loam surface layer. It is underlain by brown and yellowish-brown silt loam that is faintly mottled in the upper part and is distinctly mottled below a depth of 16 inches.

The minor soils include the well-drained Morganfield soils on the natural levees.

This association is used for pasture, row crops, and trees. The soils are high in natural fertility and are well suited to most of the commonly grown crops, grasses, and trees. The undrained, most frequently flooded areas are wooded.

Flooding and lack of good drainage seriously limit use of the soils in this association for residential and industrial development. If extensive measures are used for drainage and for flood protection, however, residential and industrial sites can be developed.

6. Robinsonville-Crevasse Association

Well-drained and excessively drained, loamy and sandy, nonacid soils

This soil association consists of nearly level soils on broad to narrow ridges that have shallow depressions. It borders the Mississippi River and some of its old channels. This association covers about 2 percent of the county.

The Robinsville soils make up about 43 percent of the association; the Crevasse soils, about 30 percent; and minor soils, the remaining 27 percent.

The Robinsonville soils occur on high natural levees. These soils are well drained and formed in alluvium with sandy loam texture. Typically, they have a surface layer of dark grayish-brown fine sandy loam 7 inches thick. Below this layer is brown and dark grayish-brown fine sandy loam, loamy sand, sandy loam, and loamy fine sand.

Crevasse soils occupy the natural levees adjacent to the Mississippi River. They are excessively drained and have formed in thick beds of sand from the river. Crevasse soils have a surface layer of dark grayish-brown sand about 4 inches thick. This layer is underlain by grayish-brown and dark grayish-brown sand.

The minor soils in this association include the moderately well drained Bruin soils and the excessively drained Bruno soils.

Most of this association is woodland, though small areas are used for pasture and row crops. These soils are well suited to most of the commonly grown grasses and trees. If they are protected from flooding, these soils can be developed for hunting, hiking, camping, and other recreational activities and for residential and industrial sites.

7. Bruin-Convent-Robinsonville Association

Somewhat poorly drained to well-drained, loamy, nonacid soils

This association consists of nearly level soils on ridges and in shallow depressions on flood plains of the Mississippi River. The depressions are generally less than 100 feet wide and occur about every 200 or 300 feet. This association is adjacent to the Mississippi River and old channels of the river. It covers about 8 percent of the county.

The Bruin soils make up about 44 percent of the association; the Convent soils, about 34 percent; the Robinsonville soils, about 18 percent; and minor soils, the remaining 4 percent.

The Bruin soils are on the higher ridges. They are moderately well drained soils that formed in medium-textured alluvium. Bruin soils have a dark grayish-brown silt loam surface layer about 6 inches thick. Their subsoil is brown loam, very fine sandy loam, and silt loam mottled with grayish brown, dark grayish brown, and yellowish brown.

The Convent soils occupy the lower areas in this association. They are somewhat poorly drained soils that formed in medium-textured alluvium. Convent soils have a brown silt loam surface layer about 8 inches thick. Below this layer is dark grayish-brown and grayish-brown silt loam.

The Robinsonville soils occupy the high natural levees. They are well-drained soils that formed in sandy loam alluvium. Typically, Robinsonville soils have a dark grayish-brown fine sandy loam surface layer 7 inches thick. This layer is underlain by brown and dark grayish-brown

fine sandy loam, loamy sand, sandy loam, and loamy fine sand.

The minor soils in this association include the poorly drained Tunica soils, depressed.

About 75 percent of this association is woodland and about 25 percent is used for row crops and pasture. The soils are high in natural fertility and are suited to most of the commonly grown crops, grasses, and trees.

Use of this soil association for residential or industrial development is limited unless the soils are protected from flooding.

8. Sharkey-Tunica-Newellton Association

Poorly drained and somewhat poorly drained, clayey, nonacid soils

This soil association consists of nearly level soils that occur in low, broad areas on the flood plains of the Mississippi River. In these areas are slight depressions and sloughs. Frequent flooding is likely, particularly in winter and early in spring. This association covers about 13 percent of the county.

The Sharkey soils make up about 48 percent of the association; the Tunica soils, about 35 percent; the Newellton soils, about 6 percent; and minor soils, the remaining 11 percent.

The Sharkey soils occupy low areas and are poorly drained. They formed in thick beds of clayey material. Their surface layer is dark grayish-brown to very dark grayish-brown clay 6 inches thick. Below this is dark-gray clay mottled with dark yellowish brown, very dark grayish brown, and brown.

The Tunica soils occur on slight ridges and in depressions. These soils are poorly drained and formed in beds of clayey material 20 to 36 inches thick. They have a very dark grayish-brown clay surface layer about 16 inches thick. Below this is dark-gray clay that is mottled and extends to a depth of 28 inches. Between depths of 28 and 40 inches is light brownish-gray loam.

Newellton soils occupy narrow and broad ridges. These soils are somewhat poorly drained, and they formed in beds of clayey material 10 to 20 inches thick. They have a dark-gray clay surface layer about 4 inches thick. Their subsoil is dark grayish-brown clay and heavy silty clay loam that extends to a depth of 16 inches. The subsoil is underlain by mottled dark grayish-brown, dark-gray, and brown silt loam.

The minor soils in this association are the somewhat poorly drained, nearly level Bowdre, Commerce, and Convent soils. These soils occupy the low ridges.

Most of this association is in hardwood forest, for which the soils are well suited. The soils are poorly suited to crops and grasses because drainage is poor or somewhat poor, and flooding is frequent.

The soils in this association have severe limitations to use for residential or industrial development because of drainage, flooding, and shrink-swell potential.

Descriptions of Soils

This section describes the soil series and mapping units in Adams County. The approximate acreage and proportionate extent of each mapping unit are given in table 1.

TABLE 1.—*Approximate acreage and proportionate extent of the soils*

Soil	Acres	Percent
MEDIUM INTENSITY		
Adler silt loam	6, 190	2. 2
Bowdre clay	310	. 1
Bruin silt loam	1, 505	. 5
Bruin silty clay loam	1, 150	. 4
Bruno loamy fine sand	1, 090	. 4
Collins silt loam	5, 060	1. 8
Commerce silt loam	610	. 2
Commerce silt loam, frequently flooded	725	. 3
Convent silt loam	1, 840	. 6
Crevasse sand	3, 875	1. 4
Crevasse-Bruno complex	2, 990	1. 0
Falaya silt loam	5, 910	2. 1
Gullied land	9, 330	3. 3
Gullied land-Natchez complex, 17 to 60 percent slopes	12, 170	4. 2
Memphis silt loam, 0 to 2 percent slopes	2, 080	. 7
Memphis silt loam, 2 to 5 percent slopes, eroded	15, 185	5. 3
Memphis silt loam, 5 to 8 percent slopes, eroded	19, 285	6. 7
Memphis silt loam, 8 to 17 percent slopes	3, 480	1. 2
Memphis silt loam, 8 to 17 percent slopes, eroded	9, 760	3. 4
Memphis silt loam, 17 to 60 percent slopes, eroded	48, 810	17. 0
Memphis silt loam, 12 to 60 percent slopes, severely eroded	7, 685	2. 7
Memphis-Natchez complex, 17 to 60 percent slopes	12, 035	4. 2
Morganfield silt loam	1, 230	. 4
Newellton clay	3, 285	1. 1
Robinsonville very fine sandy loam	2, 270	. 8
Sharkey clay	8, 515	3. 0
Tippo silt loam, 0 to 3 percent slopes	2, 215	. 8
Tunica clay	940	. 3
Tunica clay, depressed	1, 200	. 4
Vicksburg silt loam, local alluvium	360	. 1
Waverly silt loam	800	. 3
Water	13, 160	4. 6
Total	205, 050	71. 5
LOW INTENSITY		
Bowdre-Sharkey association	1, 255	. 4
Bruno and Vicksburg soils	2, 780	1. 0
Convent-Adler association	1, 545	. 5
Convent-Bruin association	19, 010	6. 6
Falaya association	9, 075	3. 2
Lucy-Memphis association, hilly	12, 090	4. 2
Memphis-Gullied land association, hilly	5, 885	2. 1
Memphis-Susquehanna association, hilly	6, 475	2. 3
Sharkey-Tunica association	14, 570	5. 1
Tunica-Newellton association	8, 985	3. 1
Total	81, 670	28. 5
Grand total	286, 720	100. 0

The procedure in this section is first to describe the soil series and then the mapping units in the series. Thus, to get full information on any one mapping unit, it is necessary to read the description of the unit and also the description of the soil series to which it belongs. As mentioned in the section "How This Survey Was Made," not all mapping units are of a soil series. For example, Gullied land is a miscellaneous land type and does not belong to

a soil series; nevertheless, it is listed in alphabetic order along with the series.

An essential part of each soil series is the description of the soil profile, the sequence of layers beginning at the surface and continuing downward to the depths beyond which roots of most plants do not penetrate. Each soil series contains both a brief nontechnical and a detailed technical description of the soil profile. The nontechnical description will be useful to most readers. The detailed technical description is included for soil scientists, engineers, and others who need to make thorough and precise studies of soils.

Most of Adams County was mapped at medium intensity, but a large part was mapped at low intensity. The intensity of the mapping for the units described in the following pages is indicated by the soil symbol in parentheses after each soil name. This symbol also identifies the mapping unit on the soil map. If the second letter of a symbol is a small letter, the unit was mapped at medium intensity. A symbol having the second letter a capital represents low intensity mapping. The composition of units mapped at low intensity is more variable than that of units mapped at medium intensity, but composition has been controlled well enough to allow interpretations for expected uses.

Listed at the end of each description of a mapping unit are the capability unit and the woodland suitability group in which the mapping unit has been placed. The page on which each capability unit and each woodland group is described can be found by referring to the "Guide to Mapping Units" at the back of this soil survey.

Many terms used in the soil descriptions and other sections are defined in the Glossary at the back of this survey and in the "Soil Survey Manual" (*9*)[1].

Adler Series

The Adler series consists of deep, moderately well drained soils on narrow to broad flood plains. These soils formed in recent silty alluvium. Slopes range from 0 to 2 percent.

In a typical profile, the surface layer is grayish-brown silt loam about 7 inches thick. Beneath this, and extending to a depth of about 48 inches, is silt loam that is brown mottled with pale brown and light brownish gray in the upper part and mottled light gray, yellowish brown, and brownish yellow in the lower part.

The native vegetation consists of bottom-land hardwoods and vines and canes. Large areas on the broad flood plains have been cleared and are used for crops and pasture.

Typical profile of Adler silt loam, 2 miles south of Natchez on lower Woodville road, then 1½ miles west on Carthage road, and three-fourths mile south on the west side of oil-well road, in a pasture (sec. 11, T. 6 N., R. 3 W.):

Ap—0 to 7 inches, grayish-brown (10YR 5/2) silt loam; weak, fine, granular structure; very friable; many fine and medium roots; neutral; abrupt, smooth boundary.

C1—7 to 16 inches, brown (10YR 5/3) silt loam with few, fine, faint mottles of pale brown; structureless; thinly bedded; very friable; many fine roots; neutral; clear, wavy boundary.

[1] Italicized numbers in parentheses refer to Literature Cited, p. 50.

C2—16 to 32 inches, yellowish-brown (10YR 5/4) silt loam with common, medium, distinct mottles of light brownish gray; structureless; bedded; friable; many voids, worm holes, and root holes; mildly alkaline; clear, wavy boundary.

C3—32 to 48 inches, mottled light-gray (10YR 7/2), yellowish-brown (10YR 5/4), and brownish-yellow (10YR 6/6) silt loam; structureless; thinly bedded; friable; mildly alkaline.

The A horizon ranges from 4 to 8 inches in thickness. It is generally silt loam but is silt or silty clay loam in small areas. In wooded areas, the A1 horizon ranges from dark brown to very dark grayish brown. In cultivated areas, the Ap horizon ranges from grayish brown to brown. The C horizon ranges from silt loam to silt. Throughout the profile, reaction ranges from slightly acid to mildly alkaline.

Adler soils occur with the Morganfield and Convent soils in the western part of the county. In texture, Adler soils are similar to Morganfield, which are better drained and free of grayish mottles to a depth of about 20 to 30 inches. Adler soils are better drained than the Convent soils, which are mottled at a depth of about 5 inches.

Adler silt loam (0 to 2 percent slopes) (Ad).—This is a moderately well drained soil on flood plains. Its profile is the one described as typical for the series.

Included with this soil in mapping were small areas of silty clay loam. Also included were areas of Convent and Morganfield soils that make up about 15 percent of the unit.

This soil is slightly acid to mildly alkaline and high in natural fertility. Available water capacity is high, and runoff is slow. Permeability is moderate. Tilth is easily maintained, and this soil can be worked throughout a fairly wide range of moisture content without clodding.

Most of this soil has been cleared and is used for crops and pastures, but the rest is in bottom-land hardwoods. Cultivated areas have only a slight hazard of erosion, but crops may be moderately damaged by flooding. If nitrogen is applied liberally, crops common in the county grow well. (Capability unit IIw-1; woodland group 2)

Bowdre Series

The Bowdre series consists of somewhat poorly drained soils that occur in gently undulating areas on flood plains of the Mississippi River. These soils formed in beds of clayey material 10 to 20 inches thick and are underlain by medium-textured material. Slopes range from 0 to 2 percent.

In a typical profile, the surface layer is very dark grayish-brown clay about 9 inches thick. The subsoil is very dark grayish-brown silty clay. Below a depth of about 17 inches is mottled brownish silt loam and fine sandy loam. The profile is mildly alkaline below the surface layer and is stratified in the lower part.

The native vegetation consists of bottom-land hardwoods and vines and canes.

Typical profile of Bowdre clay, 2 miles south of Natchez on lower Woodville road, then 9 miles west on Carthage road, 300 feet south of iron gate, 75 feet east of fence, in a pasture (sec. 11, T. 6 N., R 4 N.):

Ap—0 to 9 inches, very dark grayish-brown (10YR 3/2) clay; black (10YR 2/1) ped faces; moderate, fine and medium, subangular and angular blocky structure; firm when moist, plastic and sticky when wet; mildly alkaline; clear, smooth boundary.

B—9 to 17 inches, very dark grayish-brown (10YR 3/2) silty clay with few, fine, faint mottles of dark brown; moderate, medium, subangular and angular blocky struc-

ture; firm when moist, plastic and sticky when wet; mildly alkaline; clear, smooth boundary.

IIC1—17 to 34 inches, mottled brown (10YR 4/3), grayish-brown (10YR 5/2), and dark grayish-brown (10YR 4/2) silt loam and few thin strata of heavy silt loam; structureless; thinly bedded; friable; mildly alkaline; abrupt, smooth boundary.

IIC2—34 to 48 inches, dark grayish-brown (10YR 4/2) fine sandy loam with few, fine, faint mottles of grayish brown; structureless; very friable; mildly alkaline.

The A horizon ranges from very dark gray to dark brown. Texture of the A and B horizons is mainly clay but ranges from clay to silty clay loam. The clayey material extends to a depth of 10 to 20 inches. The B horizon is similar to the A horizon in color but contains few to many mottles of dark grayish brown and brown. The C horizon is generally mottled. The C1 horizon ranges from silt loam to fine sandy loam but has strata of silty clay loam or heavy silt loam. The C2 horizon is loamy sand in some places. Reaction ranges from medium acid to neutral in the A horizon and from slightly acid to moderately alkaline below.

The Bowdre soils occur with the Tunica, Sharkey, and Newellton soils in the western part of the county. They have thinner clayey layers than Tunica and Sharkey soils. Bowdre soils have a darker colored surface layer than Newellton soils but are similar to them in texture and reaction.

Bowdre clay (0 to 2 percent slopes) (Bc).—This soil is somewhat poorly drained, and its profile is the one described as typical for the series.

Included with this soil in mapping were areas of the Tunica and Newellton soils that make up about 15 percent of the unit.

This soil is medium acid to mildly alkaline. It is high in natural fertility but responds well to applications of nitrogen. Available water capacity is high, permeability is slow to moderate, and surface runoff is slow. Tilth is generally poor, and this soil can be worked only within a narrow range of moisture content without clodding.

A large part of this soil has been cleared and is used for crops and pastures. If management is good, crops and grasses common in the county grow moderately well. Bottom-land hardwoods are well suited. (Capability unit IIIw-1; woodland group 10)

Bowdre-Sharkey association (0 to 2 percent slopes) (BS).—This association consists of nearly level soils that occur in low, broad areas on the alluvial flood plains of the Mississippi River. In these areas are a few shallow depressions, old stream runs, and lakes or sloughs. These soils are frequently flooded in winter and spring.

The Bowdre soils make up about 50 percent of this association; the Sharkey soils, about 15 percent; and the minor Robinsonville soils, about 15 percent. The remaining 20 percent consists of Tunica, Newellton, and Bruin soils. The pattern and extent of the dominant Bowdre and Sharkey soils are fairly uniform in this association.

The Bowdre soils are somewhat poorly drained. Their surface layer is very dark grayish-brown clay about 9 inches thick. The subsoil is dark-brown or very dark grayish-brown silty clay about 9 inches thick. It is underlain by mottled brown, grayish-brown, and dark grayish-brown silt loam and fine sandy loam. These soils are slightly acid to moderately alkaline and high in natural fertility and available water capacity.

The Sharkey soils are poorly drained and have a surface layer of dark-gray to dark grayish-brown clay. Below this layer is gray clay mottled with brown. These soils are neutral to mildly alkaline and high in natural fertility and available water capacity.

320—512—70——2

The minor Robinsonville soils are well drained. Their surface layer is brown, friable fine sandy loam. These soils are high in natural fertility.

The soils in this association are better suited to bottom-land hardwoods than to crops and pasture. (Capability unit IVw-1; Bowdre soils are in woodland group 10, and Sharkey soils are in woodland group 11)

Bruin Series

The Bruin series consists of moderately well drained, slightly acid to moderately alkaline soils. These soils formed in medium-textured alluvium on flood plains of the Mississippi River. Slopes range from 0 to 2 percent.

In a typical profile, the surface layer is dark grayish-brown silt loam about 6 inches thick. The subsoil is brown loam and very fine sandy loam mottled with grayish brown. Below a depth of about 21 inches is a thick layer of brown silt loam mottled with grayish brown, dark grayish brown, and yellowish brown.

The native vegetation consists of bottom-land hardwoods and vines and canes.

Typical profile of Bruin silt loam, 5 miles west of Sibley on Hutchins Landing road, 20 feet east of road, in a pasture (sec. 16, T. 5 N., R. 3 W.):

Ap—0 to 6 inches, dark grayish-brown (10YR 4/2) silt loam with few, fine, faint mottles of brown and dark gray; weak, medium, subangular blocky structure; friable; few fine roots; moderately alkaline; abrupt, smooth boundary.

B2—6 to 14 inches, brown (10YR 4/3) loam with common, fine, faint mottles of grayish brown; weak, medium, subangular blocky structure; very friable; few fine roots; moderately alkaline; clear, smooth boundary.

B3—14 to 21 inches, brown (10YR 5/3) very fine sandy loam with common, fine, faint mottles of grayish brown; weak, medium, subangular blocky structure; very friable; moderately alkaline; gradual, smooth boundary.

C1—21 to 26 inches, brown (10YR 4/3) silt loam with common, fine, faint mottles of dark grayish brown and grayish brown; structureless; thinly bedded; friable; moderately alkaline; gradual, smooth boundary.

C2—26 to 43 inches, brown (10YR 4/3) silt loam with common, fine, faint mottles of grayish brown and dark grayish brown and few, fine, distinct mottles of yellowish brown; structureless; thinly bedded; friable; moderately alkaline; gradual, smooth boundary.

C3—43 to 50 inches, mottled dark grayish-brown (10YR 4/2), dark-gray (10YR 4/1), and dark yellowish-brown (10YR 4/4) silt loam; structureless; friable; moderately alkaline.

The A horizon ranges from gray and dark grayish brown to brown. It is silt loam in most places but is very fine sandy loam, loam, or silty clay loam in small areas. The solum ranges from 15 to 28 inches in thickness. The B horizon, which is weakly developed, ranges from very fine sandy loam to silt loam. Its content of clay ranges from 7 to 18 percent. Colors of the B horizon range from brown to dark yellowish brown mottled with gray to dark grayish brown. Reaction ranges from slightly acid to moderately alkaline.

Bruin soils occur with the somewhat poorly drained Convent and Commerce soils and the well-drained Robinsonville soils in the western part of the county. They are better drained than the Convent and Commerce soils, are browner than the Convent, and coarser textured than the Commerce soils. Bruin soils are siltier than Robinsonville soils and are not so well drained.

Bruin silt loam (0 to 2 percent slopes) (Bn).—The profile of this moderately well drained soil is the one described as typical for the series.

Included with this soil in mapping were small areas of

Convent and Commerce soils that make up about 15 percent of the unit. In other included areas the surface layer is fine sandy loam, loam, or silty clay loam.

This soil is slightly acid to moderately alkaline. It is high in natural fertility but responds well to applications of nitrogen. Available water capacity is high, and permeability is moderate. Runoff is slow to medium. Tilth is easily maintained, and this soil can be worked throughout a wide range of moisture content without clodding.

A large part of this soil has been cleared and is used for crops and pasture. All crops commonly grown in the county are well suited. Bottom-land hardwoods are also well suited. (Capability unit I-1; woodland group 8)

Bruin silty clay loam (0 to 2 percent slopes) (Br).—This moderately well drained soil has a dark grayish-brown silty clay loam surface layer 4 to 7 inches thick. The subsoil is brown silt loam faintly mottled with dark grayish brown.

Included with this soil in mapping were areas of Convent and Commerce soils that make up about 15 percent of this unit. Also included were small patches of soils that have a silty clay surface layer and a highly stratified subsoil.

This soil is moderately alkaline and is high in natural fertility. Available water capacity is high. Roots and water easily penetrate the subsoil. Tilth is generally fair, and this soil can be worked throughout a moderate range of moisture content without clodding.

Most of this soil is wooded, but some areas have been cleared and are used for crops and pastures. All commonly grown crops are suited. (Capability unit IIw-2; woodland group 8)

Bruno Series

The Bruno series consists of excessively drained, nearly level soils on flood plains. These soils formed in sandy alluvial material. Slopes range from 0 to 2 percent.

In a typical profile, the surface layer is yellowish-brown loamy fine sand about 7 inches thick. This layer is underlain by pale-brown loamy sand that extends to a depth of 13 inches. Below this, to a depth of 48 inches, is brown loamy fine sand, very pale brown loamy sand, and yellowish-brown loamy fine sand. Distinct mottles of light brownish gray are between depths of 39 and 48 inches.

The native vegetation consists of bottom-land hardwoods and canes. Small areas of these soils have been cleared and are used for pasture.

Typical profile of Bruno loamy fine sand, 2 miles south of Natchez on lower Woodville road, then west 6 miles on Carthage road, 15 feet east of road and 15 feet south of woods, in a pasture (sec. 2, T. 6 N., R. 4 W.):

Ap—0 to 7 inches, yellowish-brown (10YR 5/4) loamy fine sand; weak, fine, granular structure; very friable; many fine and medium roots; neutral; abrupt, smooth boundary.

C1—7 to 13 inches, pale-brown (10YR 6/3) loamy sand; single grain; loose; neutral; clear, smooth boundary.

C2—13 to 30 inches, brown (10YR 4/3) loamy fine sand; single grain; loose; mildly alkaline; abrupt, smooth boundary.

C3—30 to 39 inches, very pale brown (10YR 7/3) loamy sand; single grain; loose; neutral; gradual, smooth boundary.

C4—39 to 48 inches, yellowish-brown (10YR 5/4) loamy fine sand with fine, distinct mottles of light brownish gray; single grain; loose; neutral.

The A horizon ranges from sand to fine sandy loam in texture and from yellowish brown to dark grayish brown in color. The C horizon ranges from very pale brown to dark grayish brown and from sand to fine sandy loam. Reaction ranges from slightly acid to mildly alkaline.

Bruno soils occur with the Crevasse, Vicksburg, and Robinsonville soils. They are finer textured than the Crevasse soils but are similar to them in drainage and color. Bruno soils are coarser textured than Vicksburg and Robinsonville soils. They are better drained than Robinsonville soils but are similar to them in color.

Bruno loamy fine sand (0 to 2 percent slopes) (Bu).—This deep, excessively drained soil is on alluvial flood plains of the Mississippi River. Its surface layer is grayish-brown loamy fine sand 5 to 8 inches thick. The underlying material is grayish-brown to dark grayish-brown loamy fine sand and loamy sand.

Included with this soil in mapping were areas of Robinsonville and Crevasse soils that make up about 10 percent of the mapping unit.

This soil is slightly acid to mildly alkaline. Permeability is rapid, and available water capacity is low. Roots and water easily penetrate the subsoil. This soil is low in natural fertility and responds poorly to applications of fertilizer.

Most of the cleared areas are in pasture, but some small areas are used for row crops. Because of the severe hazard of drought, crops common in the county grow only fairly well. Deep-rooted sod plants, however, are suited. (Capability unit IIIw-2; woodland group 6)

Bruno and Vicksburg soils (0 to 2 percent slopes) (BV).—This mapping unit consists of nearly level soils on flood plains.

The Bruno soils make up 40 percent of this mapping unit; Vicksburg soils, about 18 percent; and minor soils the remaining 42 percent. The minor soils include the Falaya, Collins, and well-drained sandy soils. The minor soils do not occur in all areas mapped.

The Bruno soils are higher than the Vicksburg soils and are excessively drained. They have a brown fine sandy loam surface layer 3 to 7 inches thick. The underlying material is brown to very pale brown sand to fine sandy loam. Bruno soils are slightly acid to mildly alkaline and low in available water capacity. Roots and water easily penetrate the subsoil.

The Vicksburg soils are generally at the lower elevations and are well drained. They have a brown, friable silt loam surface layer 4 to 6 inches thick. Beneath this is brown silt loam. Vicksburg soils are strongly acid to very strongly acid and moderate in natural fertility. Available water capacity is moderate. Roots and water easily penetrate the subsoil.

Of the minor soils, the Falaya are in the low areas and are somewhat poorly drained. Their surface layer of dark grayish-brown silt loam is underlain by mottled brownish and grayish silt loam.

Some areas of this mapping unit have been cleared and are used for pasture and crops. The soils in this unit are suited to most of the commonly grown crops and to loblolly pine and hardwoods. (Bruno soils are in capability unit IIIw-2 and woodland group 6; Vicksburg soils are in capability unit I-2 and woodland group 3)

Collins Series

The Collins series consists of deep, moderately well drained, strongly acid to very strongly acid soils on narrow flood plains. These soils formed in recent silty alluvium. Slopes range from 0 to 2 percent.

In a typical profile, the surface layer is brown silt loam about 10 inches thick. Beneath this is brown and dark-brown, friable silt loam that is mottled with shades of brown and gray. Mottled light brownish-gray, yellowish-brown, and dark-brown silt loam is at a depth of about 27 inches.

The native vegetation consists of bottom-land hardwoods and canes.

Typical profile of Collins silt loam, 1¾ miles south of U.S. Highway No. 84 and 75 feet north of Higgenbottom road, on east side of creek, in a cornfield (sec. 66, T. 7 N., R. 1 W.):

Ap—0 to 10 inches, brown (10YR 5/3) silt loam; weak, fine, granular structure; friable; strongly acid; clear, wavy boundary.

C1—10 to 19 inches, brown (10YR 5/3) silt loam with few, fine, faint mottles of dark yellowish brown, pale brown, and light brownish gray; structureless; thinly bedded; friable; strongly acid; clear, wavy boundary.

C2—19 to 27 inches, dark-brown (10YR 4/3) silt loam with common, medium, faint mottles of light brownish gray; structureless; thinly bedded; friable; few fine concretions of iron and manganese; strongly acid; abrupt, smooth boundary.

C3g—27 to 44 inches, mottled light brownish-gray (10YR 6/2), yellowish-brown (10YR 5/4), and dark-brown (10YR 4/3) silt loam; structureless; friable; common, fine, soft concretions of iron and manganese; strongly acid.

The Ap horizon ranges from brown to dark grayish brown in color and from silt loam to silt in texture. The C horizon ranges from silt loam to silt in texture and from brown or dark brown to light brownish gray or yellowish brown in color. It is mottled with grayish colors. Throughout the profile, reaction ranges from very strongly acid to strongly acid.

The Collins soils occur with the somewhat poorly drained Falaya and the poorly drained Waverly soils but are better drained than those soils. They are similar to the Falaya soils in texture but are not mottled with grayish colors within 10 inches of the surface. Collins soils are browner than Waverly soils in which grayish mottles are dominant in 80 percent or more of the profile.

Collins silt loam (0 to 2 percent slopes) (Co).—This moderately well drained soil occurs on flood plains adjacent to the loess-covered uplands of the county. Its profile is the one described as typical for the series.

Included with this soil in mapping were areas of Falaya and Waverly soils that make up about 15 percent of the unit. Also included were small areas of well-drained, sandy soils.

This soil is strongly acid to very strongly acid. It is high in natural fertility but responds well to applications of lime and fertilizer. Available water capacity is high, and surface runoff is slow. Roots and water readily penetrate the subsoil. Tilth is easily maintained, and this soil can be worked throughout a fairly wide range of moisture content without clodding.

Most of this soil has been cleared and is used for crops and pastures. Cultivated areas may be moderately damaged by flooding. If fertilizer is applied liberally, crops and grasses common in the county grow well. Bottom-land hardwoods are well suited. (Capability unit IIw-1; woodland group 3)

Commerce Series

The Commerce series consists of somewhat poorly drained, slightly acid to moderately alkaline soils on the alluvial flood plains of the Mississippi River. Slopes are slightly convex and range from 0 to 2 percent.

In a typical profile, the surface layer extends to a depth of about 11 inches. It is mottled dark grayish-brown, very dark gray, brown, and dark-gray silt loam in the upper part and is brown very fine sandy loam distinctly mottled with light brownish gray in the lower part. The subsoil extends to a depth of about 32 inches. It is silty clay loam in the upper part and silt loam in the lower part. In color, the subsoil is brownish and grayish and is mottled. The underlying material is silt loam.

The native vegetation consists of bottom-land hardwoods and vines and canes. Small areas have been cleared and are used for crops and pasture.

Typical profile of Commerce silt loam that has slopes of one-half percent, 2 miles south of Natchez on lower Woodville road, one-fourth mile east of road, in woods (sec. 6, T. 6 N., R. 4 W.):

A11—0 to 6 inches, mottled dark grayish-brown (10YR 4/2), very dark gray (10YR 3/1), brown (10YR 4/3), and dark-gray (10YR 4/1) silt loam; weak, medium, granular structure; friable; many fine roots; moderately alkaline; clear, wavy boundary.

A12—6 to 11 inches, brown (10YR 4/3) very fine sandy loam with common, fine, distinct mottles of light brownish gray; structureless; bedded; friable; moderately alkaline; abrupt, wavy boundary.

B2—11 to 24 inches, mottled very dark grayish-brown (10YR 3/2), dark-brown (10YR 3/3), dark-gray (10YR 4/1), and dark grayish-brown (10YR 4/2) silty clay loam; weak to moderate, medium, subangular blocky structure; friable; slightly plastic; moderately alkaline; gradual, wavy boundary.

B3—24 to 32 inches, mottled very dark gray (10YR 3/1), brown (10YR 4/3), and dark grayish-brown (10YR 4/2) heavy silt loam; weak, medium, subangular blocky structure; friable; moderately alkaline; gradual, smooth boundary.

C—32 to 50 inches, mottled dark-gray (10YR 4/1), very dark grayish-brown (10YR 3/2), brown (10YR 4/3), and dark grayish-brown (10YR 4/2) silt loam; structureless; thinly bedded; friable; moderately alkaline.

The texture of the A horizon is mainly silt loam, but in small areas it is loam or silty clay loam. Colors in the A horizon range from very dark gray to brown and in the B horizon from light brownish gray to very dark grayish brown. The B horizon varies in texture because the parent material is stratified, but much of this horizon is heavy loam, heavy silt loam, silty clay loam, or a thin layer of silty clay. The C horizon ranges from silt loam to very fine sandy loam. Reaction ranges from slightly acid to moderately alkaline.

The Commerce soils occur with the Convent, Bruin, and Robinsonville soils in the western part of the county. They are finer textured than the Convent soils but are similar to them in drainage and color. Commerce soils are finer textured, more poorly drained, and grayer than the Bruin and Robinsonville soils.

Commerce silt loam (0 to 2 percent slopes) (Cs).—This somewhat poorly drained soil has a dark grayish-brown silt loam surface layer 4 to 6 inches thick. The subsoil is dark grayish-brown silty clay loam to heavy silt loam mottled with dark gray and brown.

Included with this soil in mapping were areas of Convent and Bruin soils that make up about 15 percent of the unit. Also included were small areas of silty clay loam.

This soil is slightly acid to moderately alkaline and high in natural fertility. It has high available water capacity

and slow surface runoff. Roots and water readily penetrate the subsoil. Tilth is easily maintained, and this soil can be worked throughout a fairly wide range of moisture content without clodding.

If drainage is adequate, crops common in the county grow well on this soil. Erosion is only a slight hazard in cultivated areas. Bottom-land hardwoods are well suited. (Capability unit I–1; woodland group 8)

Commerce silt loam, frequently flooded (0 to 2 percent slopes) (Cr).—This somewhat poorly drained, nearly level soil is on the alluvial flood plains of the Mississippi River in the southwestern part of the county. It is in broad areas that are dissected by shallow depressions and sloughs or bayous. Flooding is likely in winter and early in spring.

This soil has a dark grayish-brown silt loam surface layer 4 to 6 inches thick. The subsoil is dark grayish-brown to mottled gray and brown heavy silt loam and silty clay loam. It is underlain by grayish-brown silt loam to very fine sandy loam.

Included with this soil in mapping were small areas that have a silty clay loam surface layer.

This soil is slightly acid to moderately alkaline and is high in natural fertility and available water capacity. Infiltration is slow, and permeability is slow to moderately slow.

This soil is in hardwood forest and is well suited to that use. Other uses are limited by a severe hazard of flooding. (Capability unit IVw–1; woodland group 8)

Convent Series

The Convent series consists of somewhat poorly drained, slightly acid to moderately alkaline soils on broad flood plains. These soils formed in recent alluvium. Slopes range from 0 to 2 percent.

In a typical profile, the surface layer is brown silt loam 5 inches thick. Beneath this, and extending to a depth of about 50 inches, is brown, dark grayish-brown, and grayish-brown silt loam that is mottled with shades of brown.

The native vegetation consists of bottom-land hardwoods and vines and canes. Most of the acreage is woodland, but a small part has been cleared and is used for crops and pasture.

Typical profile of Convent silt loam that has slopes of less than one-half percent, 11½ miles south of Natchez on U.S. Highway No. 61, 300 feet west of highway, in woods (sec. 4, T. 4 N., R. 3 W.):

A1—0 to 5 inches, brown (10YR 4/3) silt loam; weak, fine and medium, granular structure; very friable; few medium roots; neutral; clear, smooth boundary.

AC—5 to 8 inches, brown (10YR 4/3) silt loam with many fine and medium, distinct mottles of pale brown, yellowish brown, and grayish brown; structureless; thinly bedded; very friable; neutral; gradual, smooth boundary.

C1—8 to 27 inches, dark grayish-brown (10YR 4/2) silt loam with many, medium, distinct mottles of brown, grayish brown, and dark yellowish brown; structureless; thinly bedded; very friable; few medium roots; few, fine, soft, black and brown concretions and stains; mildly alkaline; gradual, smooth boundary.

C2g—27 to 50 inches, mottled grayish-brown (10YR 5/2), dark-brown (10YR 4/3), and dark grayish-brown (10YR 4/2) silt loam; structureless; thinly bedded; very friable; dark-brown stains on ped faces; moderately alkaline.

The A1 horizon ranges from brown to very dark grayish brown. In some small areas it is silty clay loam, very fine sandy loam, or loam. The C horizon ranges from silt to very fine sandy loam in texture and from dark gray to brown in color. Reaction of this horizon ranges from slightly acid to moderately alkaline.

Convent soils occur with the Adler, Bruin, and Commerce soils in the western part of the county. They are more poorly drained and grayer than the Adler and Bruin soils. Convent soils are coarser textured than the Commerce soils but are similar to them in drainage and color.

Convent silt loam (0 to 2 percent slopes) (Cv).—This deep, somewhat poorly drained soil has a dark grayish-brown silt loam surface layer 5 to 9 inches thick. The next layer is stratified silt loam mottled with dark grayish brown to dark brown.

Included with this soil in mapping were areas of Adler and Commerce soils that make up about 15 percent of the unit. Also included were small areas of silty clay loam.

Convent silt loam is slightly acid to mildly alkaline. It is high in natural fertility but responds well to applications of nitrogen. Available water capacity is high. Water moves through the soil at a moderate rate. Tilth is easily maintained, and this soil can be worked throughout a moderate range of moisture content without clodding.

Most of this soil is in hardwoods, but a large part has been cleared and is used for pasture and crops. If nitrogen is applied liberally, crops common in the county grow moderately well. (Capability unit IIw–3; woodland group 1)

Convent-Adler association (0 to 2 percent slopes) (CA).—This association consists of nearly level soils on broad flood plains. These soils are mainly in the southwestern part of the county along the West Fork Homochitto River between the bluffs and slack water clayey areas. They are frequently flooded in winter and spring.

The Convent soils make up 50 percent of this association; the Adler soils, about 32 percent; the minor Morganfield and Robinsonville soils, about 15 percent; and other minor soils, the remaining 3 percent.

The Convent soils are on broad flats and are somewhat poorly drained. They have a dark grayish-brown silt loam surface layer underlain by brown and dark-brown, friable silt loam that is mottled with shades of gray, yellow, and brown. Reaction ranges from slightly acid to mildly alkaline, and natural fertility and available water capacity are high. Infiltration is slow, and permeability is moderate to slow.

The Adler soils are at the higher elevations and are moderately well drained. They have a brown, friable silt loam surface layer underlain by brown, friable silt loam that is mottled with gray and grayish brown below a depth of 20 inches. Reaction is slightly acid to mildly alkaline, and natural fertility and available water capacity are high. Infiltration is slow, and permeability is moderate.

The Morganfield and Robinsonville are the most extensive minor soils. They are well drained. The Morganfield soils are in the higher areas near the bluffs. They have a brown, friable silt loam surface layer and underlying material. They are slightly acid to mildly alkaline and are high in natural fertility and available water capacity. The Robinsonville soils have a dark grayish-brown very fine sandy loam surface layer underlain by brown sandy loam, loamy sand, and silt loam. Reaction is neutral to

moderately alkaline, and available water capacity is moderate.

The soils in this association are in bottom-land hardwoods and a dense undergrowth of brush, vines, and canes. Because flooding is a severe hazard, these soils are better suited to hardwoods than to crops and pasture. (Capability unit IVw–1; Convent soils are in woodland group 1, and Adler soils are in woodland group 2)

Convent-Bruin association (0 to 2 percent slopes) (CB).—This association is on the alluvial flood plains of the Mississippi River. It consists of level to gently undulating soils that are frequently flooded in winter and spring.

The Convent soils make up about 41 percent of this association; the Bruin soils, about 31 percent; and the minor Robinsonville and Commerce soils, about 22 percent. The remaining 6 percent consists of Newellton, Bowdre, and Crevasse soils. The pattern and extent of dominant Convent and Bruin soils are fairly uniform in this association. Each area mapped has both kinds of soils.

The Convent soils are in broad areas and are somewhat poorly drained. They have a dark grayish-brown silt loam surface layer 4 to 6 inches thick. Below this layer is dark grayish-brown silt loam to very fine sandy loam mottled with shades of brown. These soils are slightly acid to moderately alkaline and high in natural fertility and available water capacity.

The Bruin soils are in higher areas than the Convent soils and are moderately well drained. They have a brown to dark grayish-brown silt loam surface layer. Their subsoil is brown silt loam to very fine sandy loam. It is underlain by brown silt loam and very fine sandy loam mottled with shades of gray, yellow, and brown. These soils are slightly acid to moderately alkaline. They are high in natural fertility and available water capacity. Infiltration is slow, and permeability is moderate.

The minor Robinsonville soils are well drained and occur in the higher areas of the old natural levees. Typically, the surface layer is dark grayish-brown very fine sandy loam about 7 inches thick. It is underlain by brown and dark grayish-brown loamy material. These soils are neutral to moderately alkaline, high in natural fertility, and moderate in available water capacity.

The Commerce soils are somewhat poorly drained. Their surface layer is mottled very dark gray to brown silt loam in the upper 6 inches and is brown very fine sandy loam in the lower part. Their subsoil is mottled silty clay loam and silt loam. These soils are slightly acid to moderately alkaline and are high in natural fertility and in available water capacity.

The soils in this association are in bottom-land hardwoods and are better suited to them than to crops or pasture because flooding is a severe hazard. The undergrowth is dense and consists of brush, vines, and canes. (Capability unit IVw–1; Convent soils are in woodland group 1, and Bruin soils are in woodland group 8)

Crevasse Series

The Crevasse series consists of excessively drained, neutral to mildly alkaline soils on narrow and broad flood plains. These soils formed in sandy recent alluvium. Slopes range from 0 to 2 percent.

In a typical profile, the surface layer is dark grayish-brown sand about 4 inches thick. Beneath this is grayish-brown and dark grayish-brown sand that extends to a depth of 50 inches.

The native vegetation consists of bottom-land hardwoods. Small areas of these soils have been cleared and are used for pasture.

Typical profile of Crevasse sand, on Jackson Point, about 3,500 feet west of a private airfield on field road and 75 feet north to U.S. Engineers bench mark, then 280 feet west (sec. 3, T. 3 N., R. 5 W.):

A1—0 to 4 inches, dark grayish-brown (10YR 4/2) sand; single grain; loose; neutral; abrupt, smooth boundary.

C1—4 to 20 inches, grayish-brown (10YR 5/2) sand; single grain; loose; neutral; gradual, smooth boundary.

C2—20 to 50 inches, dark grayish-brown (10YR 4/2) sand; single grain; loose; neutral.

The A horizon ranges from sand to coarse loamy sand in texture and from light gray to brown or dark grayish brown in color. The C horizon ranges from light gray to brown or dark grayish brown. Reaction ranges from neutral to mildly alkaline.

The Crevasse soils occur with the Bruno, Robinsonville, and Bruin soils. They are coarser textured than the Bruno soils but are similar to them in drainage and color. Crevasse soils are coarser textured and are better drained than the well drained Robinsonville and the moderately well drained Bruin soils.

Crevasse sand (0 to 2 percent slopes) (Cw).—This deep, excessively drained soil generally occurs in the western part of the county, and in most places is adjacent to the Mississippi River. The surface layer is grayish-brown to brown coarse loamy sand to sand.

Included in mapping were areas of a Bruno soil that has a fine sandy loam surface layer underlain by loamy sand and fine sandy loam. These included areas make up about 15 percent of the area mapped as Crevasse sand.

This soil is neutral to mildly alkaline. It has low available water capacity and very rapid permeability.

Because this soil is droughty, it is not suited to most of the commonly grown crops and grasses. It is a good source of sand used in roadbeds and cement. (Capability unit IVs–1; woodland group 7)

Crevasse-Bruno complex (0 to 2 percent slopes) (Cx).—This mapping unit consists of sandy Crevasse and Bruno soils on the alluvial flood plains. These soils are so intermingled in small, narrow bands that they cannot be mapped separately, though their extent and pattern are uniform. The Crevasse soils make up about 55 percent of this complex, and the Bruno soils, about 45 percent.

The Crevasse soils are higher than the Bruno soils and are excessively drained. They have light-gray to brown sand surface layer that is underlain by brown to light-gray sand. Crevasse soils are slightly acid to mildly alkaline. Available water capacity is low, and permeability is very rapid.

The Bruno soils are also excessively drained. They have a brownish fine sandy loam to loamy fine sand surface layer that is underlain by brown and very pale brown loamy sand. Bruno soils are slightly acid to mildly alkaline. Available water capacity is low, and permeability is rapid.

The soils in this complex are mostly wooded, but small areas have been cleared and are used for pasture. The soils generally are too droughty for most commonly grown crops. (Capability unit IVs–1; Crevasse soils are in woodland group 7, and Bruno soils are in woodland group 6)

Falaya Series

The Falaya series consists of somewhat poorly drained soils on narrow and broad flood plains. These soils formed in thick beds of silty alluvial material. Slopes range from 0 to 2 percent.

In a typical profile, the surface layer consists of silt loam about 10 inches thick. It is brown in the upper part and brown to dark yellowish brown distinctly mottled with light brownish gray in the lower part. The next layer extends to a depth of 24 inches and consists of mottled light brownish-gray, grayish-brown, and brown silt loam. Below this is light brownish-gray and light-gray silt loam distinctly mottled with brown and dark yellowish brown.

The native vegetation consists of bottom-land hardwoods and vines, canes, and underbrush. Large areas have been cleared and are used for crops and pasture.

Typical profile of Falaya silt loam, 4 miles southeast of Kingston, on Deerfield road, one-eighth mile west of Sandy Creek, in a cornfield (sec. 27, T. 5 N., R. 2 N.):

Ap1—0 to 5 inches, brown (10YR 5/3) silt loam; weak, fine, granular structure; very friable; many fine roots; strongly acid; abrupt, smooth boundary.

Ap2—5 to 10 inches, brown (10YR 4/3) to dark yellowish-brown (10YR 4/4) silt loam with common, fine, distinct mottles of light brownish gray; structureless; thinly bedded; friable; few, medium, black and dark-brown concretions; strongly acid; clear, smooth boundary.

C1—10 to 24 inches, mottled light brownish-gray (10YR 6/2), grayish-brown (10YR 5/2), and brown (10YR 4/3) silt loam; weak platy structure; thinly bedded; friable; few, fine, soft, black and dark-brown concretions; strongly acid; clear, smooth boundary.

C2g—24 to 28 inches, light brownish-gray (2.5Y 6/2) silt loam with many, medium, distinct mottles of brown and dark yellowish brown; structureless to weak subangular blocky structure; friable; few, fine, black and dark-brown concretions; strongly acid; clear, smooth boundary.

C3g—28 to 48 inches, light-gray (10YR 7/1) silt loam with many, medium, distinct mottles of brown; structureless; friable; common, soft, black and dark-brown concretions; strongly acid.

The A horizon ranges from dark grayish brown and dark yellowish brown to brown. Its texture generally is silt loam but is silt or heavy silt loam in small areas. The color of the C horizon ranges from light gray to brown with mottles ranging from light brownish gray to brown. Reaction ranges from very strongly acid to strongly acid.

The Falaya soils occur with the Collins, Waverly, and Vicksburg soils. They are more poorly drained and grayer than the moderately well drained Collins soils and the well drained Vicksburg soils. Unlike Collins soils, Falaya soils are mottled with grayish colors within 10 inches of the surface. Falaya soils are not so poorly drained as the Waverly soils, in which grayish mottles are dominant in 80 percent or more of the profile.

Falaya silt loam (0 to 2 percent slopes) (Fa).—This somewhat poorly drained, acid soil has a brown silt loam surface layer. The underlying material consists of mottled grayish-brown, brownish-gray, and brown silt loam.

Included with this soil in mapping were areas of Collins and Waverly soils that make up about 15 percent of the unit. Also included were small areas of well-drained sandy soils.

This soil is high in natural fertility. Infiltration is slow, and permeability is moderate to slow. Available water capacity is high. Tilth is easily maintained, and this soil can be worked throughout a moderate range of moisture content without clodding.

This soil is in crops, pasture, and trees. It is suited to most of the crops and pasture plants commonly grown in the county and to bottom-land hardwoods. (Capability unit IIw-3; woodland group 4)

Falaya association (0 to 2 percent slopes) (FF).—This association consists of nearly level soils that occur in broad areas on the flood plains of the Homochitto River in the southern part of the county. These areas are dissected by shallow depressions and meandering bayous.

The Falaya soils make up about 76 percent of the association. The remaining 24 percent consists of Collins soils, Crevasse soils, and areas of swamp.

The Falaya soils occur throughout the association and are somewhat poorly drained. They have a brown to dark grayish-brown silt loam surface layer that is underlain by mottled brownish and grayish silt loam. Falaya soils are high in natural fertility and available water capacity. Infiltration is slow, and permeability is moderate to slow.

The Collins soils are moderately well drained. Their surface layer is brown silt loam. The underlying material is brown and dark-brown silt loam faintly mottled with shades of gray and brown between depths of 10 and 27 inches. Collins soils are high in natural fertility and available water capacity. Infiltration and runoff are slow.

The Crevasse soils occur on the higher natural levees and are deep and excessively drained. They are low in natural fertility and available water capacity.

The areas of swamp occur near the base of uplands. These areas are small to medium in size and are scattered throughout the association. Shallow water stands in the areas most of the time. The vegetation consists mainly of tupelo gum and cypress and a dense undergrowth of water-grass.

Most of this association is covered with hardwood trees and a dense undergrowth of brush, vines, briers, and canes. Flooding in winter and spring limits the use of these soils, but bottom-land hardwoods are suited. (Capability unit IVw-1; woodland group 4)

Gullied Land

Gullied land (5 to 50 percent slopes) (Gu) occurs in the central and eastern parts of the county. It consists of areas in which large and small gullies have formed. Except in small areas between the gullies, the soil profile has been destroyed. In the central part of the county the soil material is medium acid or strongly acid silt and silty clay loam. In the eastern part of the county the soil material is strongly acid and is of silt, sand, or clay texture.

This land type is better suited to trees than to other uses. Because the soils are steep and rough, runoff is very rapid, and the hazard of erosion is very severe. (Capability unit VIIe-1; woodland group 14)

Gullied land-Natchez complex, 17 to 60 percent slopes (GxF).—This mapping unit is in areas where deep, wide gullies and steep, rough hills are dominant. It is adjacent to the flood plains of the Mississippi River. The Natchez soils occur around the rim of gullies and in areas between the gullies, and they are in bands so narrow that they cannot be mapped separately from the gullies.

Gullied land makes up about 61 percent of this complex, and the Natchez soils, about 27 percent. The remaining 12

percent consists of well-drained soils on uplands and well-drained soils on alluvium. Gullied land and Natchez soils are uniform in pattern.

Gullied land consists of areas in which long gullies have formed. The gullies are 50 to 250 feet deep and 50 to 500 feet wide. The soil material is mostly silty in the smaller gullies, but it is silty and sandy where the gullies are deeper and wider.

The Natchez soils occur on the upper slopes around the rim of gullies. They are well-drained soils that have a dark grayish-brown to brown silt loam surface layer and a brown silt loam subsoil. The underlying material is brown to yellowish-brown silt loam. Natchez soils are slightly acid to mildly alkaline and are high in natural fertility and available water capacity.

Almost all of this complex is wooded. Runoff is very rapid, and the hazard of erosion is very severe. (Capability unit VIIe-1; woodland group 13)

Lucy Series

The Lucy series consists of well-drained, acid soils on steep side slopes. These soils formed in loamy material. Slopes range from 20 to 45 percent.

In a typical profile, dark grayish-brown, pale-brown, and yellowish-brown loamy fine sand extends to a depth of about 27 inches. The subsoil is yellowish-red sandy clay loam in the upper part and yellowish-red fine sandy loam in the lower part.

The native vegetation consists of loblolly pine and hardwoods. Because slopes are steep and rough, these soils are not suited to cultivated crops. They are suited to pines and hardwoods.

Typical profile of a Lucy loamy fine sand that has slopes of 30 percent, 3,000 feet northwest of tower road on woods road, then 200 feet east, in woods (sec. 50, T. 6 N., R. 1 W.):

A1—0 to 3 inches, dark grayish-brown (10YR 4/2) loamy fine sand; weak, fine, granular structure; very friable; very strongly acid; abrupt, smooth boundary.

A2—3 to 14 inches, pale-brown (10YR 6/3) loamy fine sand; weak, fine, granular structure; very friable; very strongly acid; gradual, smooth boundary.

A3—14 to 27 inches; yellowish-brown (10YR 5/6) loamy fine sand; single grain; loose; very strongly acid; clear, smooth boundary.

B21t—27 to 38 inches, yellowish-red (5YR 4/8) sandy clay loam; weak to moderate, fine and medium, subangular blocky structure; friable; clay films and bridging of sand grains; few thin clay films on peds; very strongly acid; gradual, smooth boundary.

B22t—38 to 60 inches +, yellowish-red (5YR 5/6) heavy fine sandy loam; weak, fine and medium, subangular blocky structure; clay bridging of sand grains; very friable; very strongly acid.

The A horizon ranges from 20 to 40 inches in thickness. The A1 horizon ranges from loamy fine sand to loamy sand. It is generally dark grayish brown. The B horizon ranges from yellowish red to red in color and from heavy sandy loam to sandy clay loam in texture. Reaction ranges from strongly acid to very strongly acid. There may be some gravel, less than 10 percent, in the profile.

Lucy soils occur with Memphis soils in the eastern part of the county. They are coarser textured than Memphis soils and have a paler surface layer and a redder subsoil.

Lucy-Memphis association, hilly (8 to 45 percent slopes) (LME).—This association consists of sloping to hilly soils on rough uplands in the eastern part of the county. The less sloping parts of this association are on narrow, winding ridgetops, and the very steep soils are on side slopes that are broken by many drainageways. Most areas are woodland.

The Lucy soils make up about 50 percent of this association; Memphis soils, about 23 percent; soils similar to the Lucy, about 17 percent; and minor soils, the remaining 10 percent. Lucy and Memphis soils are in a fairly uniform pattern throughout the association; each area mapped contains both kinds of soils and generally four or more kinds of minor soils and a few gullied areas.

The Lucy soils are well drained. They occur mainly on side slopes and are very steep, but in some places they are on narrow ridgetops and are less sloping. Their surface layer is dark grayish-brown to light yellowish-brown loamy fine sand to loamy sand about 20 to 40 inches thick. The subsoil is yellowish-red sandy clay loam and heavy sandy loam. Lucy soils are very strongly acid, are low in natural fertility, and are low to moderate in available water capacity. Infiltration is moderate. Permeability is rapid in the upper 20 to 40 inches and moderate below that depth.

The Memphis soils are generally on ridgetops and are well drained. They have a dark grayish-brown to brown silt loam surface layer 2 to 5 inches thick. The subsoil is brown silty clay loam to heavy silt loam. Memphis soils are strongly acid and are high in natural fertility and available water capacity. Infiltration is slow, and permeability is moderate.

The minor soils that are similar to Lucy soils occur on side slopes and are steep. They have a dark grayish-brown fine sandy loam surface layer 8 to 18 inches thick. The subsoil is yellowish-red sandy clay loam. These soils are very strongly acid, are low in natural fertility, and are moderate in available water capacity. Infiltration and permeability are moderate.

Other minor soils include the moderately well drained Collins, the somewhat poorly drained Falaya, and the well drained Vicksburg soils. Also included are somewhat poorly drained, clayey soils and soils that have a thin mantle of silt underlain by sandy material.

Almost all of this association is in pine trees and hardwoods. In most places the soils are too steep for cultivation or pasture, but they are suited to trees. Runoff is very rapid, and erosion is a very severe hazard. (Capability unit VIIe-2; Lucy soils are in woodland group 15, and Memphis soils are in woodland group 14)

Memphis Series

The Memphis series consists of deep, well-drained, acid soils of the uplands. These soils developed from thick beds of silty material. Slopes range from 0 to 60 percent, but slopes of 8 to 25 percent are dominant.

In a typical profile, the surface layer is brown silt loam about 8 inches thick. The subsoil extends to a depth of 64 inches and is brown silty clay loam in the uppermost 16 inches and brown silt loam below.

The native vegetation consists of loblolly pine and upland hardwoods. Large areas having slopes of no more than 12 percent have been cleared and are used for cultivated crops and pasture.

Typical profile of an uneroded Memphis silt loam on the Natchez Branch Experiment Station, west from Foster

Mound road, on Wilderness road, south side of cut for new road (sec. 11, T. 7 N., R. 2 W.) :

Ap—0 to 8 inches, brown (10YR 5/3) silt loam; weak, fine, granular structure; friable; many roots; very strongly acid; abrupt, smooth boundary.

B21t—8 to 24 inches, brown (7.5YR 4/4) silty clay loam; moderate, fine and medium, subangular blocky structure; friable; common fine roots; continuous dark-brown clay films; very strongly acid; clear, smooth boundary.

B22t—24 to 60 inches, brown (7.5YR 4/4) heavy silt loam; weak to moderate, fine and medium, subangular blocky structure; friable; very pale brown silt coatings or streaks; thin, discontinuous, dark-brown clay films; strongly acid; gradual, smooth boundary.

B3—60 to 64 inches, brown (7.5YR 5/4) silt loam; structureless to weak subangular blocky structure; very friable; strongly acid.

Profile of an eroded Memphis silt loam on a 25 percent slope, 2 miles south of Natchez city limits on U.S. Highway No. 61, and 300 feet west of church on left side of highway, in a wooded area (sec. 16, T. 6 N., R. 3 W.) :

A1—0 to 2 inches, dark grayish-brown (10YR 4/2) silt loam; weak, fine, granular structure; friable; very strongly acid; abrupt, smooth boundary.

A2—2 to 5 inches, brown (10YR 4/3) silt loam; weak, fine, granular structure; friable; very strongly acid; clear, smooth boundary.

B21t—5 to 29 inches, brown (7.5YR 4/4) silty clay loam; moderate, medium, subangular blocky structure; friable; continuous clay films; strongly acid; gradual, smooth boundary.

B22t—29 to 40 inches, brown (7.5YR 4/4) heavy silt loam; weak, medium, subangular blocky structure; friable; thin discontinuous clay films; strongly acid; gradual, smooth boundary.

B3—40 to 48 inches, brown (7.5YR 4/4) silt loam; weak, medium, subangular blocky structure; friable; light-gray to very pale brown silt coatings and streaks; strongly acid.

In wooded areas Memphis soils have a dark grayish-brown A1 horizon about 2 inches thick and a brown A2 horizon about 3 inches thick. The A horizon ranges from silt to silt loam. The B horizon ranges from brown to strong brown. Light-gray silt coatings or streaks occur below a depth of 24 inches in some areas.

Memphis soils occur with the Natchez, Lucy, and Susquehanna soils on uplands throughout the county. They are finer textured, are more acid, and have stronger profile development than the Natchez soils. Memphis soils are finer textured than Lucy soils and have a thinner surface layer and a browner subsoil. They are better drained than Susquehanna soils and are less clayey in their subsoil.

Memphis silt loam, 0 to 2 percent slopes (MeA).—This is a deep, well-drained soil on broad, flat ridgetops. Its surface layer is a dark grayish-brown silt loam 8 to 12 inches thick, and its subsoil is brown silty clay loam more than 24 inches thick. The underlying material is brown silt loam.

Included with this soil in mapping were small areas that have slopes of 2 to 5 percent.

This soil is strongly acid to very strongly acid, is high in natural fertility, and has high available water capacity. Runoff is slow to moderate. Roots and water easily penetrate the subsoil. Tilth is easily maintained, and this soil can be worked throughout a wide range of moisture content without clodding.

Most of this soil has been cleared and cultivated, but much of it is now in pasture. If applications of fertilizer are heavy, crops common in the county grow well. Erosion is a slight hazard in cultivated areas. Upland hardwoods and loblolly pine are well suited. (Capability unit I-3; woodland group 13)

Memphis silt loam, 2 to 5 percent slopes, eroded (MeB2).—This is a deep, well-drained soil on ridgetops. It has a brown silt loam surface layer 1 to 6 inches thick (fig. 2). The subsoil is brown to strong-brown silty clay loam to heavy silt loam to a depth of 24 inches and is brown silt loam below that depth.

Included with this soil in mapping were small areas that have slopes of 5 to 8 percent. Also included were areas of soils that have a weak fragipan.

This Memphis soil is strongly acid to very strongly acid and is high in natural fertility and available water capacity. Runoff is moderate. The subsoil is easily penetrated by roots and water. Tilth is easily maintained, and this soil can be worked throughout a wide range of moisture content without clodding.

Most of this soil has been cleared and cultivated, but much of it is now in pasture and trees. If applications of fertilizer are heavy, crops common in the county grow well. Erosion is a moderate hazard in cultivated areas. Upland hardwoods and loblolly pine are well suited. (Capability unit IIe-1; woodland group 13)

Memphis silt loam, 5 to 8 percent slopes, eroded (MeC2).—This is a deep, well-drained soil that has a brown silt loam surface layer 2 to 6 inches thick. The subsoil is brown to strong-brown silty clay loam to heavy silt loam to a depth of more than 24 inches and is brown silt loam below that depth.

Included with this soil in mapping were small areas that

Figure 2.—Deep cut in Memphis silt loam, 2 to 5 percent slopes, eroded.

have slopes of 2 to 5 percent and small areas where the brown subsoil is exposed.

This soil is strongly acid and high in natural fertility and available water capacity. Runoff is moderate to rapid. Roots and water easily penetrate the subsoil.

Although most of this soil has been cleared and cultivated, it is now used mainly for pasture and trees. If applications of fertilizer are heavy, the crops common in the county grow moderately well. Erosion is a severe hazard in cultivated areas. Loblolly pine and adapted hardwoods are well suited. (Capability unit IIIe–1; woodland group 13)

Memphis silt loam, 8 to 17 percent slopes (MeD).—This soil occurs mainly in the upper parts of drainageways, and a few areas are on ridgetops. The surface layer is brown silt loam 5 to 8 inches thick. The subsoil is brown silty clay loam to silt loam more than 24 inches thick. It is underlain by brown silt loam.

Included with this soil in mapping were areas of Natchez soils that make up about 15 percent of the unit.

This Memphis soil is strongly acid to very strongly acid and is high in natural fertility and available water capacity. Because runoff is rapid, erosion is a severe hazard in unprotected areas.

This soil is mainly in forest, but small areas have been cleared and planted to pasture. Pasture plants grow well where applications of fertilizer are heavy. Adapted hardwoods and loblolly pine are well suited. (Capability unit IVe–1; woodland group 13)

Memphis silt loam, 8 to 17 percent slopes, eroded (MeD2).—This deep, well-drained, sloping to steep soil occurs at the head of drainageways and on a few ridgetops. In most areas the subsoil is exposed. The surface layer is brown silt loam 1 to 4 inches thick, and the subsoil is brown silty clay loam to silt loam more than 24 inches thick. Below this is brown silt loam.

Included with this soil in mapping were small gullied areas.

This soil is very strongly acid and high in natural fertility and available water capacity. Runoff is rapid, and erosion is a severe hazard in bare areas.

Most of this soil has been cleared and cultivated, but much of it is now in pasture and trees. Where this soil is heavily fertilized, pasture plants grow well. Loblolly pine and other perennial vegetation are well suited, for they lessen the hazard of erosion. (Capability unit IVe–1; woodland group 14)

Memphis silt loam, 17 to 60 percent slopes, eroded (MeF2).—This is a deep, well-drained soil on side slopes. It has a dark grayish-brown and brown silt loam surface layer 5 inches thick. The subsoil extends to a depth of 48 inches. It is brown silty clay loam in the upper part and brown silt loam in the lower part.

Included with this soil in mapping were areas of Natchez soils that make up about 15 percent of this mapping unit. Also included were small areas where the brown subsoil is exposed and small areas where the surface layer is 18 inches thick.

This soil is strongly acid to very strongly acid, is high in natural fertility, and has high available water capacity. Because slopes are steep, runoff is rapid and the hazard of erosion is severe.

Most of this soil is in forest, but small areas have been cleared and are used for pasture. This soil is well suited to perennial pasture plants and to loblolly pine and adapted upland hardwoods. (Capability unit VIe–1; woodland group 13)

Memphis silt loam, 12 to 60 percent slopes, severely eroded (MeF3).—This soil occurs on side slopes and on sharp breaks near the ridgetops. It has a brown silt loam surface layer 1 to 3 inches thick. The subsoil is exposed in some places, and in these areas a few shallow gullies have formed. The upper part of the subsoil is silty clay loam to silt loam.

Included with this soil in mapping were small areas of Gullied land and small areas that have a surface layer more than 3 inches thick.

This soil is strongly acid, is moderate in natural fertility, and has high available water capacity. Because slopes are steep, the hazard of erosion is severe.

A large part of this soil has been cleared and pastured, but most of it is now wooded. Loblolly pine is well suited. (Capability unit VIIe–2; woodland group 14)

Memphis-Gullied land association, hilly (8 to 45 percent slopes) (MGE).—This association consists of soils on long, narrow, winding ridges that have side slopes cut by many drainageways and gullies. The soils on side slopes are very steep. The association is in the eastern part of the county.

The Memphis soils make up about 42 percent of this association; Gullied land, about 20 percent; the minor Collins, Falaya, and Vicksburg soils, about 24 percent; and Natchez, Lucy, and other minor soils, the remaining 14 percent. The Memphis soils and Gullied land are in a fairly uniform pattern and are in each mapped area, generally with four or more kinds of the minor soils.

The Memphis soils are well drained and occur on the long, narrow, winding ridges and on the upper and middle parts of the side slopes. Their surface layer is dark grayish-brown to brown, friable silt loam. The subsoil is brown to strong-brown, friable silty clay loam underlain by brown silt loam. These soils are strongly acid and high in natural fertility and available water capacity.

Gullied land is generally in the upper part of the drainageways, but in some areas it is also at the bottom and lower parts of slopes between ridges. Except in small areas between the gullies, the soil profile has been destroyed. The soil material is silt loam, sandy loam, and clay.

The Collins soils, which are minor soils, are moderately well drained and occur in alluvium in the valleys. They have a dark grayish-brown to yellowish-brown silt loam surface layer 4 to 8 inches thick. The underlying material is brown to dark-brown silt loam that is mottled with shades of gray and brown below a depth of 20 inches. These soils are strongly acid and high in natural fertility and available water capacity.

Almost all of this association is in pine and hardwood forest. Because the soils are rough and hilly, trees are suitable but cultivated crops and pasture are not. Runoff is rapid, and the hazard of erosion is very severe. (Capability unit VIIe–2; woodland group 14)

Memphis-Natchez complex, 17 to 60 percent slopes (MnF).—This mapping unit is on rough, hilly uplands adjacent to the flood plains of the Mississippi River. It occurs on long, narrow, winding ridgetops and steep and very steep side slopes.

The Memphis soils make up about 59 percent of this complex; Natchez soils, about 29 percent; and Gullied

land, the remaining 12 percent. The Memphis and Natchez soils occur in a uniform pattern in each area mapped. Gullied land occurs in some areas, but not all.

The Memphis soils are well drained and occur on the ridgetops and the upper part of the side slopes. They have a surface layer of dark grayish-brown to brown silt loam 2 to 7 inches thick. The subsoil consists of brown, friable silty clay loam and silt loam. These soils are strongly acid to very strongly acid and are high in natural fertility and available water capacity.

The Natchez soils are well drained and occur on the steep side slopes. They have a surface layer of dark grayish-brown silt loam and a subsoil of brown silt loam. Below the subsoil is brown to yellowish-brown silt loam. These soils are slightly acid to mildly alkaline and high in natural fertility and available water capacity.

Almost all of this complex is in hardwood forest. This is a good use because runoff is very rapid and the hazard of erosion is very severe. (Capability unit VIe–1; woodland group 13)

Memphis-Susquehanna association, hilly (8 to 45 percent slopes) (MSE).—This association consists of sloping to hilly soils on rough uplands in the eastern part of the county. The less sloping parts of this association are on narrow, winding ridgetops, and the very steep soils are on slopes that are broken by many short drainageways. Most areas are woodland.

Memphis and Susquehanna soils occur in about equal proportion and make up about 60 percent of this association. The remaining 40 percent consists of minor soils. The Memphis and Susquehanna soils are in a fairly uniform pattern throughout this association; each mapped area contains both kinds of soils and generally four or more kinds of minor soils.

The Memphis soils are on ridges and the middle and upper parts of slopes. They have a dark grayish-brown to brown silt loam surface layer 4 to 6 inches thick. The subsoil is brown to strong-brown silty clay loam to heavy silt loam to a depth of 60 inches. This layer is underlain by brown silt loam. These Memphis soils are very strongly acid and are high in natural fertility and available water capacity.

The Susquehanna soils are generally on the middle and lower parts of slopes and are somewhat poorly drained. Their surface layer is very dark gray to dark grayish-brown silt loam to fine sandy loam. The subsoil is brown, light brownish-gray, and red clay that is mottled. These soils are very strongly acid, moderate in natural fertility, and moderate to high in available water capacity. Infiltration and permeability are slow.

Among the minor soils, the Collins is the most extensive. These soils are on narrow flood plains in valleys and are moderately well drained. Their surface layer of brown silt loam is underlain by brown silt loam that is mottled below a depth of 20 inches. These soils are strongly acid and are high in natural fertility and available water capacity. They are easily penetrated by roots and water.

Other minor soils are the Lucy, Falaya, Vicksburg, and a silty soil that occurs on uplands and is underlain by sandy material. The Lucy soils occur on side slopes and are steep and well drained. The Falaya soils are on narrow flood plains and are somewhat poorly drained. The Vicksburg soils are well drained and occur in small, narrow, U-shaped valleys at the head of streams.

Almost all of this association is in pine trees and hardwoods. In most places the soils are too steep for cultivation or pasture, but they are suited to trees. Runoff is very rapid, and erosion is a severe hazard. (Capability unit VIIe–2; Memphis soils are in woodland group 14, and Susquehanna soils are in woodland group 15)

Morganfield Series

The Morganfield series consists of well-drained, slightly acid to mildly alkaline soils. These soils are on the flood plains of small streams and at the edge of the flood plains of the Mississippi River. Slopes range from 0 to 2 percent. These soils formed in recent alluvium.

In a typical profile, the surface layer is brown silt loam 8 inches thick. Beneath this, and extending to a depth of about 50 inches, is brown silt loam that is faintly mottled with brown and pale brown.

The native vegetation consists of bottom-land hardwoods and vines and canes. Large areas have been cleared and are used for crops and pastures.

Typical profile of Morganfield silt loam, south on U.S. Highway No. 61 to Jeff Davis Boulevard, then two-tenths mile east on Jeff Davis Boulevard, 340 feet south of boulevard; from old hackberry tree with metal disk marker, 55 feet along a line 15 degrees counterclockwise from north, in a meadow (sec. 46, T. 6 N., R. 3 W.):

Ap—0 to 8 inches, brown (10YR 4/3) silt loam; weak, fine, granular structure; very friable; common fine roots; slightly acid; abrupt, smooth boundary.

C1—8 to 29 inches, brown (10YR 4/3) silt loam with few, fine, faint mottles of brown; structureless; thinly bedded; very friable; few fine roots; slightly acid; gradual, smooth boundary.

C2—29 to 50 inches, brown (10YR 4/3) silt loam with common, fine, faint mottles of pale brown; structureless; thinly bedded; very friable; mildly alkaline.

The A horizon is generally silt loam. It ranges from grayish brown to brown. The C horizon ranges from brown to pale brown and is silt loam or silt. Throughout the profile, reaction ranges from slightly acid to mildly alkaline.

The Morganfield soils occur with the Adler and Convent soils in the western part of the county. They are similar to the moderately well drained Adler soils in texture but are better drained and are free of gray mottles to a depth of about 20 to 30 inches. Morganfield soils are browner and better drained than the somewhat poorly drained Convent soils.

Morganfield silt loam (0 to 2 percent slopes) (Mo).—The profile of this well-drained soil is the one described as typical for the series.

Included with this soil in mapping were areas of Adler and Convent soils that make up about 15 percent of the unit. Also included were small areas that contain thin sandy layers.

This soil is slightly acid to mildly alkaline and high in natural fertility. Available water capacity is high, and runoff is slow. Water enters this soil at a slow rate and moves through it at a moderate rate. Tilth is easily maintained, and this soil can be worked throughout a wide range of moisture content without clodding.

Most of this soil has been cleared and is used for crops and pasture. Cultivated areas have only a slight hazard of erosion. (Capability unit I–2; woodland group 2)

Natchez Series

The Natchez series consists of well-drained soils of the uplands. These soils developed in thick beds of silty material. Slopes range from 17 to 60 percent.

In a typical profile, the surface layer, subsoil, and underlying material are all brown silt loam. The surface layer is 4 inches thick, and the subsoil extends to a depth of 48 inches.

The native vegetation consists of upland hardwoods.

In this county Natchez soils are mapped only in complexes with Gullied land and with Memphis soils.

Typical profile of Natchez silt loam, 2¼ miles north of Natchez city limits on Cemetery road, west side of road, in woods (sec. 70, T. 7 N., R. 3 W.):

A1—0 to 4 inches, brown (10YR 4/3) silt loam; weak, fine, granular structure; friable; medium acid; abrupt, smooth boundary.

B2—4 to 21 inches, brown (10YR 4/3) silt loam; weak, medium, subangular blocky structure; very friable; medium acid; gradual, smooth boundary.

B3—21 to 48 inches, brown (10YR 4/3) silt loam; weak, medium to coarse, subangular blocky structure; very friable; slighty acid; gradual, smooth boundary.

C—48 to 60 inches, brown (10YR 4/3) silt loam; structureless; very friable; neutral.

In color, the A horizon ranges from dark grayish brown to brown and the B horizon ranges from dark yellowish brown to brown. The C horizon ranges from silt loam to silt in texture and from yellowish brown to brown in color. Reaction ranges from medium acid to slightly acid in the A and B2 horizons, from slightly acid to neutral in the B3 horizon, and from slightly acid to mildly alkaline in the C horizon.

Natchez soils occur with the Memphis soils in the western part of the county. They are coarser textured and have weaker profile development than Memphis soils and are less acid in the lower part of the subsoil.

Newellton Series

The Newellton series consists of somewhat poorly drained, gently undulating soils on flood plains of the Mississippi River. These soils formed in beds of clay sediments 10 to 20 inches thick over medium-textured material. Slopes range from 0 to 2 percent.

In a typical profile, the surface layer is 4 inches thick and consists of dark-gray clay faintly mottled with dark grayish brown. The subsoil extends to a depth of about 16 inches. It is dark grayish-brown clay mottled with dark gray and brown in the upper part and is mottled dark grayish-brown and dark-gray silty clay loam in the lower part. The subsoil is underlain by dark grayish-brown silt loam mottled with grayish brown and brown. Mottled dark-gray and brown silt loam is at a depth of about 28 inches.

The native vegetation consists of bottom-land hardwoods and vines and canes. Some areas have been cleared and are used for crops and pastures.

Typical profile of Newellton clay that has slopes of one-half percent, 50 feet east of Thornburg Lake, in a pasture (sec. 38, T. 9 N., R. 3 W.):

Ap—0 to 4 inches, dark-gray (10YR 4/1) clay with common, fine, faint mottles of dark grayish brown; moderate, medium, subangular blocky structure; firm when moist, plastic when wet; neutral; abrupt, smooth boundary.

B2—4 to 11 inches, dark grayish-brown (10YR 4/2) clay with common, fine, faint mottles of dark gray and brown; moderate, medium, subangular blocky structure; firm when moist, plastic when wet; neutral; abrupt, smooth boundary.

B3—11 to 16 inches, mottled dark grayish-brown (10YR 4/2) and dark-gray (10YR 4/1) heavy silty clay loam; weak to moderate, medium, subangular blocky structure; friable; mildy alkaline; gradual, smooth boundary.

IIC1—16 to 28 inches, dark grayish-brown (10YR 4/2) silt loam with common, fine, faint mottles of grayish brown and brown; structureless; friable; moderately alkaline; gradual, smooth boundary.

IIC2—28 to 50 inches, mottled dark-gray (10YR 4/1) and brown (10YR 4/3) silt loam; structureless; friable; moderately alkaline.

The A and B horizons combined range from 10 to 20 inches in thickness. The A horizon ranges from clay to heavy silty clay loam in texture and from dark grayish brown to dark gray in color. The B horizon ranges from clay to silty clay in texture; in color it ranges from dark gray to light brownish gray and is generally mottled. Throughout the profile, reaction ranges from neutral to moderately alkaline.

Newellton soils occur with the Bowdre, Tunica, and Bruin soils in the western part of the county. They are similar to Bowdre and Tunica soils but have a lighter colored surface layer than the very dark colored Bowdre soils and thinner clayey layers than Tunica soils. Newellton soils are finer textured and are more poorly drained than Bruin soils, which do not have a clayey surface layer.

Newellton clay (0 to 2 percent slopes) (Ne).—This somewhat poorly drained soil is occasionally flooded. Its surface layer is dark-gray clay 4 to 6 inches thick. The subsoil is dark grayish-brown and dark-gray clay to a depth of 10 to 20 inches. Below this is mottled brown and gray silt loam and very fine sandy loam.

Included with this soil in mapping were areas of Bowdre and Tunica soils that make up about 15 percent of the unit. Also included are small depressional areas.

This soil is neutral to moderately alkaline. It is high in natural fertility but responds well to applications of nitrogen.

A large part of this soil has been cleared and is used for pasture, but small areas are in row crops. If areas of this soil are adequately drained, crops common in the county grow moderately well. (Capability unit IIIw-1; woodland group 10)

Robinsonville Series

The Robinsonville series consists of well-drained, neutral to moderately alkaline soils on narrow and broad ridges. These soils formed in recent alluvium on the flood plain of the Mississippi River. Slopes range from 0 to 2 percent.

In a typical profile, the surface layer is dark grayish-brown very fine sandy loam about 7 inches thick. Beneath this, and extending to a depth of 39 inches, is brown fine sandy loam, loamy sand, and sandy loam. Dark grayish-brown fine sandy loam and loamy fine sand extend to a depth of 70 inches.

The native vegetation consists of bottom-land hardwoods. Some areas have been cleared and are used for crops and pasture.

Typical profile of Robinsonville very fine sandy loam that has slopes of 1 percent, 10 feet south of pipeline right-of-way, 180 feet east of the Mississippi River, in woods (sec. 38, T. 9 N., R. 3 W.):

A1—0 to 7 inches, dark grayish-brown (10YR 4/2) very fine sandy loam; weak, fine, granular structure; very friable; neutral; abrupt, smooth boundary.

C1—7 to 20 inches, brown (10YR 5/3) fine sandy loam; structureless; thinly bedded; very friable; neutral; clear, smooth boundary.
C2—20 to 24 inches, brown (10YR 4/3) loamy sand; structureless; thinly bedded; very friable; layer of very dark gray silt loam 4 inches thick; mildly alkaline; gradual, smooth boundary.
C3—24 to 34 inches, brown (10YR 5/3) fine sandy loam; structureless; very friable; moderately alkaline; gradual, smooth boundary.
C4—34 to 39 inches, brown (10YR 5/3) sandy loam; structureless; very friable; layer of very dark gray silt loam 2 inches thick; neutral; gradual, smooth boundary.
C5—39 to 46 inches, dark grayish-brown (10YR 4/2) fine sandy loam; structureless; very friable; neutral; abrupt, smooth boundary.
C6—46 to 70 inches, dark grayish-brown (10YR 4/2) loamy fine sand; structureless; loose; neutral.

The A horizon ranges from dark grayish brown to brown. Its texture is generally very fine sandy loam but is silt loam or silty clay loam in small areas. The C horizon ranges from silt loam to sandy loam to loamy sand. Brown is the dominant color of the C horizon. Reaction ranges from neutral to moderately alkaline throughout the profile.

Robinsonville soils occur with the Crevasse, Bruno, and Bruin soils in the western part of the county. They are finer textured than the excessively drained Crevasse and Bruno soils but are similar to Bruno in color. Robinsonville soils are sandier and better drained than the moderately well drained Bruin soils.

Robinsonville very fine sandy loam (0 to 2 percent slopes) (Ro).—This deep, well-drained soil has a brown very fine sandy loam surface layer 6 to 10 inches thick. The underlying material is brown very fine sandy loam to loamy sand.

Included with this soil in mapping were areas of Crevasse and Bruin soils that make up about 15 percent of the unit. Also included were small areas of silt loam, fine sandy loam, and silty clay loam.

This soil is neutral to moderately alkaline. Available water capacity is moderate, and roots and water easily penetrate the subsoil. Tilth is generally good, and this soil can be worked throughout a wide range of moisture content without clodding and crusting.

Most of the soil has been cleared and is used for row crops and pasture. Most of the crops common in the county are suited and grow moderately well. (Capability unit I–2; woodland group 9)

Sharkey Series

The Sharkey series consists of poorly drained, clayey soils that swell when they are wet and crack when they dry. These soils formed in thick beds of clay sediments on broad flood plains of the Mississippi River. Slopes range from 0 to 2 percent.

In a typical profile, the surface layer is about 6 inches thick. It consists of dark grayish-brown to very dark grayish-brown clay that is faintly mottled with brown and dark gray. Beneath this, and extending to a depth of about 49 inches, is dark-gray clay mottled with very dark grayish brown, dark yellowish brown, and brown.

The native vegetation consists of bottom-land hardwoods and vines.

Typical profile of Sharkey clay, 2 miles south of Natchez on lower Woodville road, then 1½ miles west on Carthage road, then 3½ miles south on oil-well road, 100 feet east of road, in woods (sec. 22, T. 6 N., R. 3 W.):

A1—0 to 6 inches, dark grayish-brown (10YR 4/2) to very dark grayish-brown (10YR 3/2) clay with common, fine and medium, faint mottles of brown and dark gray; moderate, medium, subangular blocky structure; firm when moist, plastic when wet; neutral; abrupt, smooth boundary.
C1g—6 to 15 inches, dark-gray (10YR 4/1) clay with few, fine, faint mottles of very dark grayish brown; moderate, medium, subangular blocky structure; firm when moist, plastic when wet; neutral; gradual, smooth boundary.
C2g—15 to 25 inches, dark-gray (10 YR 4/1) clay with common, medium, distinct mottles of dark yellowish brown and brown; moderate, medium, subangular blocky structure; firm when moist, plastic when wet; neutral; gradual, smooth boundary.
C3g—25 to 49 inches, dark-gray (10YR 4/1) clay with many, medium, distinct mottles of dark yellowish brown; massive; firm when moist, plastic when wet; neutral.

The A horizon ranges from very dark gray to very dark grayish brown; the dark grayish-brown and very dark gray colors occur only within 10 inches of the surface. In the C horizon mottles are gray to dark yellowish brown and texture is clay or silty clay. Reaction ranges from neutral to mildly alkaline.

The Sharkey soils occur with the Tunica, Bowdre, and Newellton soils. In the Sharkey soils, clay extends from the surface to a depth of 49 inches or more, whereas Tunica soils are clay to a depth of only 20 to 36 inches. Sharkey soils are not so well drained as Bowdre soils, in which dark clay is 9 to 20 inches thick over coarser textured material. Sharkey soils are also less well drained than Newellton soils, in which dark clay is 10 to 20 inches thick over coarser textured material.

Sharkey clay (0 to 2 percent slopes) (Sh).—This poorly drained soil has a surface layer of dark grayish-brown to very dark grayish-brown clay 6 to 8 inches thick. The underlying material is dark-gray clay to a depth of about 40 inches.

Included with this soil in mapping were areas of Tunica and Bowdre soils that make up about 15 percent of the unit. Also included were small areas of silty clay loam and silt loam.

This soil is neutral to mildly alkaline. It is high in natural fertility but responds well to applications of nitrogen. Available water capacity is high, and runoff is slow. Infiltration and permeability are slow.

Most of this soil is in hardwoods. Other uses are limited by flooding that occurs every year. If this soil is adequately drained and protected from flooding, crops common in the county grow well. (Capability unit IVw–1; woodland group 11)

Sharkey-Tunica association (0 to 2 percent slopes) (ST).—This association consists of nearly level soils on the alluvial flood plains of the Mississippi River. These soils occupy slight ridges and depressions in the slack water areas of clay.

The Sharkey soils make up about 44 percent of the association; the Tunica soils, about 33 percent; the minor Newellton and Commerce soils, about 8 percent; and Crevasse, Robinsonville, Bruin, and Bowdre soils, about 7 percent. The remaining 8 percent consists of shallow lakes or sloughs that formed where water is trapped in old stream channels that meander through the area. The Sharkey and Tunica soils are in a fairly uniform pattern throughout this association; each area mapped contains both kinds of soils and generally one or more minor soils.

The poorly drained Sharkey soils are on broad, low ridges and in depressions. Their surface layer is dark-gray to very dark grayish-brown clay 6 to 7 inches thick. The

underlying material is dark-gray clay mottled with dark brown. These soils are neutral to moderately alkaline and high in natural fertility and available water capacity. Infiltration and permeability are slow.

The Tunica soils are on the higher ridges and are poorly drained. In these soils dark grayish-brown and dark-gray clay extends to a depth of 20 to 36 inches. This is underlain by mottled grayish-brown, friable silty clay loam and silt loam. These soils are mildly alkaline to moderately alkaline and high in natural fertility and available water capacity. Infiltration and permeability are slow.

The Newellton soils are on the highest ridges in this association and are somewhat poorly drained. In these soils dark-gray to dark grayish-brown, clayey material extends to a depth of 10 to 20 inches and is underlain by grayish-brown and brown silt loam. These soils are moderately alkaline and high in natural fertility and available water capacity.

The soils in this association are covered with bottomland hardwoods and a dense undergrowth of brush, vines, and canes. Other uses are limited by annual flooding. (Capability unit IVw–1; Sharkey soils are in woodland group 11, and Tunica soils are in woodland group 10)

Susquehanna Series

The Susequehanna series consists of somewhat poorly drained, very strongly acid, steep soils on side slopes. These soils developed in thick beds of clay material. They swell when wet and shrink and crack when they dry. Slopes range from 8 to 45 percent but are mainly 20 to 40 percent.

In a typical profile, the surface layer is dark grayish-brown loam about 6 inches thick. The subsoil extends to a depth of about 45 inches. It is red clay mottled with yellowish brown and light gray in the upper part, mottled dark yellowish-brown and light brownish-gray clay in the middle part, and light yellowish-brown clay mottled with light brownish gray in the lower part.

The native vegetation consists of loblolly pine and upland hardwoods.

The Susquehanna soils are mapped only with Memphis soils in this county.

Typical profile of a Susquehanna loam, 2,500 feet east of tower road on oil-well road, then 800 feet north, in woods (sec. 50, T. 6 N., R. 1 W.):

A1—0 to 6 inches, dark grayish-brown (10YR 4/2) loam; weak, fine, granular structure; friable; very strongly acid; abrupt, smooth boundary.

B21t—6 to 11 inches, red (2.5YR 4/6) clay with common, medium, prominent mottles of yellowish brown and light gray; moderate, fine and medium, subangular and angular blocky structure; firm when moist, very plastic and sticky when wet; continuous clay films on peds; very strongly acid; gradual, smooth boundary.

B22t—11 to 30 inches, mottled dark yellowish-brown (10YR 4/4) and light brownish-gray clay; moderate, medium, subangular and angular blocky structure; firm when moist, very plastic and sticky when wet; continuous clay films on peds; very strongly acid; gradual, smooth boundary.

B3—30 to 45 inches, light yellowish-brown (10YR 6/4) clay with many, medium, distinct mottles of light brownish gray; weak to moderate, medium, subangular blocky structure; firm when moist, plastic when wet; patchy clay films; very strongly acid.

The A horizon ranges from fine sandy loam to silt loam in texture and from very dark gray and dark grayish brown to light brownish gray in color. The B3 horizon is mottled with red, light yellowish brown, light gray, yellow, and strong brown.

The Susquehanna soils occur with the well drained Memphis soils and the moderately well drained Collins soils in the southeastern part of the county. They are more poorly drained than Memphis and Collins soils and are more clayey below their surface layer.

Tippo Series

The Tippo series consists of somewhat poorly drained, acid soils that have a fragipan. These soils developed in silty material. Slopes range from 0 to 3 percent.

In a typical profile, the surface layer is brown silt loam that is about 6 inches thick and is mottled with brown and very dark brown. The subsoil above the fragipan is brown silt loam. The fragipan begins at a depth of about 19 inches and extends to a depth of 48 inches. It consists of slightly compact pale-brown and grayish-brown silt loam mottled with shades of brown and gray.

The native vegetation consists of loblolly pine and upland hardwoods. Most areas have been cleared and are used for crops and pasture.

Typical profile of a Tippo silt loam that has slopes of one-half percent, 3½ miles east of Stanton on Wickland road to Tate road, then north across Whitens Creek, 1 mile northeast on gravel road, then from wire gap on field road, 175 feet along a line 20 degrees clockwise from north, in a pasture (sec. 35, T. 8 N., R. 1 W.):

Ap—0 to 6 inches, brown (10YR 5/3) silt loam with many, fine, faint mottles of brown and very dark brown; weak, fine, granular structure; very friable; many fine roots; very strongly acid; abrupt, smooth boundary.

B2t—6 to 19 inches, brown (10YR 5/3) silt loam with common, fine, faint mottles of grayish brown and pale brown; weak, medium, subangular blocky structure; friable; few fine roots; few thin clay films on vertical faces and pores; few, fine, dark concretions; very strongly acid; clear, smooth boundary.

Bx1—19 to 29 inches, pale-brown (10YR 6/3) silt loam with common, fine, faint mottles of light brownish gray and few, fine, distinct mottles of yellowish brown; weak, medium, subangular blocky structure; friable when moist; slightly brittle and slightly compact; common, fine, dark concretions; very strongly acid; gradual, smooth boundary.

Bx2g—29 to 34 inches, grayish-brown (10YR 5/2) silt loam with common, fine, faint mottles of brown and distinct mottles of yellowish brown; weak, medium, subangular blocky structure; slightly firm when moist; slightly brittle and slightly compact; common, dark, fine and medium concretions; very strongly acid; gradual, smooth boundary.

Bx3g—34 to 48 inches, pale-brown (10YR 6/3) silt loam with many, fine, faint mottles of light brownish gray and grayish brown; weak, medium, subangular blocky structure; slightly firm when moist; slightly brittle and slightly compact; common, dark, fine and medium concretions; very strongly acid.

The A horizon ranges from silt loam to silt in texture and from grayish brown to brown in color. The B2 horizon generally is brown mottled with gray and brownish colors. The fragipan is weakly developed and ranges from silt loam to silt in texture. It is generally mottled. Reaction ranges from strongly acid to very strongly acid throughout the profile.

The Tippo soils occur with the Memphis, Collins, and Falaya soils in the eastern part of the county. In contrast to those soils. Tippo soils have a fragipan. Tippo soils are not so brown as Memphis soils, and their profile is more strongly developed than that of the Collins and Falaya soils. Tippo soils are more poorly drained than Collins soils, but they are similar to Falaya soils in drainage, color, and texture.

Tippo silt loam, 0 to 3 percent slopes (TaA).—This somewhat poorly drained soil has a fragipan. The surface layer is grayish-brown to brown silt loam 6 to 8 inches thick. The subsoil above the fragipan is brown silt loam mottled with dark grayish brown. The fragipan consists of mottled silt loam and is slightly brittle and compact.

Included with this soil in mapping were areas of Memphis and Falaya soils that make up about 15 percent of the unit. Also included were soils that are poorly drained and do not have a fragipan.

This soil is strongly acid. It is moderate in natural fertility and responds well to applications of lime and fertilizer. Available water capacity is moderately high, and runoff is slow to moderate. Infiltration is slow.

Most of this soil has been cleared and cultivated, but much of it is now in pasture. If applications of fertilizer are heavy, the crops common in the county grow well. Erosion is a slight hazard in cultivated areas. (Capability unit IIIw-3; woodland group 12)

Tunica Series

The Tunica series consists of poorly drained, slightly acid to mildly alkaline soils on low ridges and in depressions. Slopes range from 0 to 2 percent. These soils formed in beds of clay sediments that are 20 to 36 inches thick over coarser textured material. The soils swell when wet and shrink and crack when they dry.

In a typical profile, the surface layer is very dark grayish-brown clay about 3 inches thick. Beneath this is about 13 inches of dark-gray clay that is mottled with very dark grayish brown. The next layer is about 12 inches thick and consists of dark-gray clay mottled with very dark grayish brown and dark yellowish brown. It is underlain by light brownish-gray loam mottled with dark yellowish brown and yellowish brown.

The native vegetation consists of bottom-land hardwoods and vines and canes.

Typical profile of a Tunica clay, 2 miles south of Natchez on lower Woodville road, then 1½ miles west on Carthage road, then south on oil-well road for 3 miles, on east side of road, in woods (sec. 13, T. 6 N., R. 3 W.):

A1—0 to 3 inches, very dark grayish-brown (10YR 3/2) clay; massive; firm when moist, plastic when wet; mildly alkaline; gradual, smooth boundary.

AC—3 to 16 inches, dark-gray (10YR 4/1) clay with few, fine, distinct mottles of very dark grayish brown; massive; firm when moist, plastic when wet; mildly alkaline; gradual, smooth boundary.

C1g—16 to 28 inches, dark-gray (10YR 4/1) clay with common, medium, distinct mottles of very dark grayish brown and dark yellowish brown; massive; firm when moist, plastic when wet; mildly alkaline; gradual, smooth boundary.

IIC2g—28 to 40 inches, light brownish-gray (10YR 6/2) loam with common, medium, distinct mottles of dark yellowish brown and yellowish brown; structureless; friable; mildly alkaline.

The A horizon ranges from clay to silty clay in texture and from dark grayish brown to very dark grayish brown in color. The clayey material ranges from 20 to 36 inches in thickness. The AC and C horizons range from gray to dark gray and are distinctly mottled with shades of brown. In texture the IIC horizon ranges from silty clay loam to sandy loam. Throughout the profile, reaction ranges from slightly acid to mildly alkaline.

The Tunica soils occur with the Sharkey, Bowdre, and Newellton soils in the western part of the county. In drainage Tunica soils are similar to Sharkey soils, but clay extends more deeply in the Sharkey. Tunica soils are more poorly drained than the Bowdre and Newellton soils and have thicker clay horizons.

Tunica clay (0 to 2 percent slopes) (Tc).—This poorly drained soil is on narrow and broad ridges. In this soil dark grayish-brown to gray clay extends from the surface to a depth of 20 to 36 inches and is underlain by gray and brown silty clay loam and sandy loam.

Included in mapping were areas of Newellton and Bowdre soils that make up about 15 percent of the unit. Also included were small areas that have a silty clay loam surface layer.

This soil is slightly acid to mildly alkaline and high in natural fertility. It has high available water capacity.

Most of this soil is in hardwoods and is suited to that use. Some areas have been cleared and are cultivated or pastured. Most commonly grown crops are moderately well suited if an adequate drainage system is installed to remove excess surface water. (Capability unit IIIw-1; woodland group 10)

Tunica clay, depressed (0 to 2 percent slopes) (Tp).—This poorly drained soil is in long, narrow, depressed areas. In this soil dark grayish-brown to dark-gray clay extends to a depth of 20 to 36 inches and is underlain by mottled gray and brown silt loam and silty clay loam.

Included in mapping were areas of Sharkey and Bowdre soils that make up about 15 percent of the unit. Also included were small areas that have a silty clay loam or silt loam surface layer.

This soil is slightly acid to mildly alkaline, is high in natural fertility, and has high available water capacity. Surface runoff from higher areas collects in the depressions and severely limits use for row crops.

This soil is suited to pasture and bottom-land hardwoods. (Capability unit IVw-1; woodland group 10)

Tunica-Newellton association (0 to 2 percent slopes) (TN).—This association consists of nearly level soils on the alluvial flood plains of the Mississippi River. The landscape, chiefly forested, has broad, low ridges and depressions.

The Tunica soils make up about 42 percent of this association; the Newellton soils, about 17 percent; the minor Bruin and Bowdre soils, about 22 percent; and the Commerce, Robinsonville, and Crevasse soils and shallow lakes, or sloughs, about 19 percent. The Tunica and Newellton are in a fairly uniform pattern throughout this association; each mapped area contains both kinds of soils and generally one or more of the minor soils.

The poorly drained Tunica soils are generally in the lower areas. They have a dark grayish-brown to very dark grayish-brown clay surface layer. It is underlain by dark-gray to gray clay over friable, gray to grayish-brown silty clay loam to sandy loam. These soils are slightly acid to mildly alkaline and high in natural fertility. They have high available water capacity.

The Newellton soils are on the higher ridges and are somewhat poorly drained. Their surface layer is dark grayish-brown to dark-gray clay 3 to 5 inches thick. The subsoil is dark grayish-brown clay to silty clay 10 to 20 inches thick over friable, gray and grayish-brown silty clay loam to silt loam. Newellton soils are neutral to moderately alkaline and high in natural fertility and available water capacity.

Of the minor soils, the Bruin are moderately well drained and occur on the highest ridges. They have a dark grayish-brown silt loam surface layer 4 to 6 inches thick. The subsoil is brown silt loam and is underlain by brown silt loam to fine sandy loam mottled with gray. These soils are slightly acid to moderately alkaline, high in natural fertility, and moderate in available water capacity.

The soils in this association are in bottom-land hardwood forests and a dense undergrowth of brush, vines, and canes. Use is limited by a severe hazard of flooding. (Capability unit IVw-1; woodland group 10)

Vicksburg Series

The Vicksburg series consists of well-drained, acid soils on flood plains. These soils formed in recent silty alluvium. Slopes range from 0 to 2 percent.

In a typical profile, the surface layer is yellowish-brown silt loam about 5 inches thick. Beneath this is brown silt loam faintly mottled with dark brown. At depths between 25 and 33 inches is a layer of dark-brown silt loam that is underlain by brown silty clay loam.

The native vegetation consists of loblolly pine, bottom-land hardwoods, and vines and briers.

Typical profile of Vicksburg silt loam, local alluvium, on the old Natchez Branch Experiment Station, one-eighth mile north of field road, about 50 feet on right side of road, in a pasture:

Ap—0 to 5 inches, yellowish-brown (10YR 5/4) silt loam; weak, fine, granular structure; friable; strongly acid; abrupt, smooth boundary.

C—5 to 25 inches, brown (10YR 4/3) silt loam with few, fine, faint mottles of dark brown; structureless; bedded; friable; strongly acid; abrupt, smooth boundary.

Ab—25 to 33 inches, dark-brown (10YR 3/3) silt loam; weak, fine, granular structure; friable; strongly acid; abrupt, smooth boundary.

Btb—33 to 50 inches, brown (7.5YR 4/4) light silty clay loam; moderate, medium, subangular blocky structure; friable; patchy and discontinuous clay films; strongly acid.

In most places the A horizon is yellowish-brown or brown silt loam. It is 5 to 10 inches thick. The C horizon ranges from silt loam to silt. A buried B horizon occurs at a depth of 25 to 33 inches in most areas. Reaction ranges from strongly acid to very strongly acid throughout the profile.

The Vicksburg soils occur with the Bruno, Collins, and Falaya soils. They are finer textured than Bruno soils, which are excessively drained. In texture, Vicksburg soils are similar to the moderately well drained Collins and the somewhat poorly drained Falaya soils but are better drained than those soils. Unlike Collins and Falaya soils, Vicksburg soils are not mottled with grayish colors within 20 inches of the surface.

Vicksburg silt loam, local alluvium (0 to 2 percent slopes) (Vc).—This well-drained soil occurs in small, narrow, U-shaped valleys at the head of streams. It formed in silty sediments that washed from adjacent hills and vary in thickness. The surface layer consists of brown silt loam 5 to 10 inches thick. The underlying material is brown silt loam. In some places a buried subsoil occurs below a depth of 20 inches.

Included with this soil in mapping were areas of Collins soils that make up about 15 percent of the unit.

This soil is strongly acid to very strongly acid. It is high in natural fertility and responds well to applications of lime and fertilizer. Available water capacity is high, and surface runoff is medium. Roots and water easily penetrate the subsoil. Tilth is easily maintained, and this soil can be worked throughout a wide range of moisture content without clodding.

Practically all crops common in the county are grown on this soil, but heavy applications of fertilizer are needed for good growth. Bottom-land hardwoods are well suited. (Capability unit I-2; woodland group 3)

Waverly Series

The Waverly series consists of poorly drained, acid soils in low, wide, flat areas of flood plains, mainly in the eastern part of the county. These soils formed in silty alluvium.

In a typical profile, the surface layer is about 8 inches thick. It is light brownish-gray silt loam mottled with brown, light gray, and dark brown. The underlying material is light-gray or gray silt loam that extends to a depth of 48 inches. It is mottled with dark grayish brown and yellowish brown.

The native vegetation is cypress and bottom-land hardwoods and vines.

Typical profile of Waverly silt loam, 1 mile east of Kingston on Palestine road, then east three-fourths mile on field road, 175 feet northwest of cedar tree with metal disc marker, in a pasture (sec. 25, T. 5 N., R. 1 W.):

Apg—0 to 4 inches, light brownish-gray (10YR 6/2) silt loam with few, fine, distinct mottles of brown; weak, fine, granular structure; friable; very strongly acid; abrupt, wavy boundary.

A1g—4 to 8 inches, light brownish-gray (10YR 6/2) silt loam with many, fine, faint mottles of light gray and many, fine, distinct mottles of dark brown; weak, fine, granular structure; friable; very strongly acid; abrupt, wavy boundary.

C1g—8 to 18 inches, light-gray (10YR 6/1) silt loam; weak, medium, subangular blocky structure to weak, fine, granular structure; friable; very strongly acid; abrupt, smooth boundary.

C2g—18 to 32 inches, gray (10YR 5/1) silt loam with common, fine, faint mottles of dark grayish brown; weak, medium, subangular blocky structure; friable; very strongly acid; clear, smooth boundary.

C3g—32 to 38 inches, light-gray (10YR 6/1) silt loam with common, medium, distinct mottles of grayish brown and yellowish brown; structureless; friable; common, fine and medium concretions of dark brown; medium acid; gradual, smooth boundary.

C4g—38 to 48 inches, light-gray (10YR 6/1) silt loam with common, fine, distinct mottles of yellowish brown; structureless; friable; common, fine and medium concretions of dark brown; medium acid.

The A horizon ranges from dark gray to grayish brown or light brownish gray. Depth to the gleyed horizon ranges from 0 to 10 inches. Eighty percent of the soil mass is dark grayish brown to light gray. Reaction ranges from medium acid to very strongly acid.

The Waverly soils occur mainly in the eastern part of the county with Falaya and Collins soils. They are similar to Falaya soils in texture but are much grayer and are not so well drained. Waverly soils also are not so well drained as the Collins soils, which are browner than the Waverly.

Waverly silt loam (0 to 2 percent slopes) (Wa).—This poorly drained soil occupies low areas on flood plains. It has a dark grayish-brown to light brownish-gray silt loam surface layer 4 to 6 inches thick. Beneath this is gray silt loam.

Included with this soil in mapping were areas of Falaya and Collins soils that make up about 15 percent of the unit. Also included were small areas that have a silty clay loam surface layer.

This soil is moderate in natural fertility and high in available water capacity. Permeability is slow.

This soil is suited to pasture and bottom-land hardwoods. Wetness limits suitability for cultivated crops. (Capability unit IIIw–4; woodland group 5)

Use and Management of Soils

The soils of Adams County are used extensively for crops, trees, and tame pasture. This section explains how the soils can be managed for these main purposes and also for woodland grazing, for wildlife, and in the building of highways, farm ponds, and other engineering structures. Also given are the estimated yields of the principal crops and pasture grasses.

In presenting information about the use of soils for crops and pasture, as woodland for wood products, for woodland grazing, and for wildlife habitat, the procedure is to describe a group that is made up of similar soils that are suitable for those purposes and to suggest use and management for the group. To determine the soils in each of these groups, refer to the "Guide to Mapping Units" at the back of this survey. In the section on engineering, the soils are not grouped but are placed in tables so that properties significant to engineering work can be readily given.

Crops and Tame Pasture

This section discusses general practices of managing soils for crops and tame pasture, explains the system of capability classification used by the Soil Conservation Service, and suggests management by capability groups of soils. Also, a table lists estimated yields of principal crops and pasture plants on arable soils under a high level of management.

General practices of management [2]

Discussed in the following paragraphs are general practices of management that are needed on many of the soils in the county used for cultivated crops or tame pasture. These practices help to maintain crop growth, to conserve moisture, and to control erosion.

Cropping systems are needed that provide sod crops or annual cover crops between periods of cultivation, for these crops protect the soil from erosion while they are growing, and they help to maintain the supply of organic matter. The kind of soil, the slope, and the degree of erosion determine the length of time a soil should be cultivated, compared with the time it should be protected by a cover or sod crop.

Fertilizer is needed on most of the cultivated soils in the county so as to increase crop growth and the amount of crop residues. The amounts and kinds of fertilizer needed can be learned from soil tests made by the Agricultural Experiment Station at Mississippi State University.

On bare soils or cultivated soils, surface runoff must be controlled so that it does not wash the soil away. By slowing runoff, more water soaks into the soil and the hazard of erosion is reduced. Terraces, contour cultivation, and wide strips of close-growing vegetation are commonly used to control runoff and erosion. The water from the terraces should be discharged into well-stabilized grassed waterways or into areas covered with dense vegetation. Natural draws make the best waterways.

In contour cultivation, furrows are plowed across the slope, in the same direction as the terraces, and about parallel to them. A furrow acts as a small terrace, for it slows the water as it moves downslope, and it also conducts some of the water across the slope. On gently sloping soils, generally only contour cultivation is needed to control runoff.

On some of the soils in the county neither surface nor internal drainage is adequate. These soils require structural measures, such as main and lateral ditches and surface field ditches leading to them. Diversions are needed to protect soils on bottom lands from water running off hills above.

Good pasture supplies food for livestock, protects the soil from erosion, adds organic matter to the soil, and makes the soil more porous. In Adams County the soils are suited to many kinds of pasture plants, but the grazing capacity of the pasture depends largely on the amount of fertilizer applied. The amounts and kinds of fertilizer, and frequency of application, should be determined by soil tests.

The grazing should be regulated so that good growth of forage is maintained and the soils are protected. After a period of grazing, a rest period is needed so that pasture plants can recover. Also, weeds should be controlled by mowing or by other means. Mowing is generally effective.

Capability groups of soils

Capability classification is the grouping of soils to show, in a general way, their suitability for most kinds of farming. It is a practical classification based on limitations of the soils, the risk of damage when they are used, and the way they respond to treatment. The classification does not apply to most horticultural crops, or to rice and other crops that have their own special requirements. The soils are classified according to degree and kind of permanent limitation, but without consideration of major and generally expensive landforming that would change the slope, depth, or other characteristics of the soils; and without consideration of possible major reclamation projects.

In the capability system, all kinds of soils are grouped at three levels, the capability class, subclass, and unit. These are discussed in the following paragraphs.

CAPABILITY CLASSES, the broadest grouping, are designated by Roman numerals I through VIII. The numerals indicate progressively greater limitations and narrower choices for practical use. Classes are defined as follows:

- Class I. Soils have few limitations that restrict their use.
- Class II. Soils have some limitations that reduce the choice of plants or require moderate conservation practices.
- Class III. Soils have severe limitations that reduce the choice of plants, require special conservation practices, or both.
- Class IV. Soils have very severe limitations that restrict the choice of plants, require very careful management, or both.
- Class V. Soils are subject to little or no erosion but have other limitations, impractical to remove, that limit their use largely to pasture, range, wood-

[2] HERMAN S. SAUCIER, conservation agronomist, Soil Conservation Service, assisted in the preparation of this section.

land, or wildlife food and cover. (None in Adams County)

Class VI. Soils have severe limitations that make them generally unsuited to cultivation and limit their use largely to pasture or range, woodland, or wildlife food and cover.

Class VII. Soils have severe limitations that make them unsuited to cultivation and that restrict their use largely to grazing, woodland, or wildlife.

Class VIII. Soils and landforms have limitations that preclude their use for commercial plant production and restrict their use to recreation, wildlife, or water supply, or to esthetic purposes. (None in Adams County)

CAPABILITY SUBCLASSES are soil groups within one class; they are designated by adding a small letter, *e*, *w*, *s*, or *c*, to the class numeral, for example, IIe. The letter *e* shows that the main limitation is risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c*, used in some parts of the United States, but not in Adams County, shows that the chief limitation is climate that is too cold or too dry.

In class I there are no subclasses, because the soils of this class have few limitations. Class V can contain, at the most, only subclasses indicated by *w*, *s*, and *c*, because the soils in it are subject to little or no erosion, though they have other limitations that restrict their use largely to pasture, range, woodland, wildlife, or recreation.

CAPABILITY UNITS are soil groups within the subclasses. The soils in one capability unit are enough alike to be suited to the same crops and pasture plants, to require similar management, and to have similar productivity and other responses of management. Thus, the capability unit is a convenient grouping for making many statements about management of soils. Capability units are generally designated by adding an Arabic numeral to the subclass symbol, for example, IIe-1 or IIIe-1. Thus, in one symbol, the Roman numeral designates the capability class, or degree of limitation, and the small letter indicates the subclass, or kind of limitation, as defined in the foregoing paragraph. The Arabic numeral specifically identifies the capability unit within each subclass.

Management by capability units

The soils in Adams County have been placed in 18 capability units. The soils in each unit have about the same limitations, are subject to similar risks of damage, need about the same kind of management, and respond to management in about the same way. In the following pages each capability unit is described, and management for each is discussed. To determine the soils in a capability unit, refer to the "Guide to Mapping Units" at the back of this survey.

CAPABILITY UNIT I-1

The soils in this unit occur on the flood plains of the Mississippi River and are moderately well drained and somewhat poorly drained. They have a silt loam surface layer and a loamy subsoil.

These soils are slightly acid to moderately alkaline, are high in natural fertility, and have high available water capacity. Infiltration is moderate, and permeability is moderate to slow.

The soils in this unit are well suited to the commonly grown crops. Suitable crops are cotton, corn, soybeans, sorghums, small grains, grasses, and legumes. These soils can be used for row crops every year. Crop residues shredded and left on the surface as a mulch help to maintain tilth and to increase infiltration. Excess surface water can be removed by field drains, properly arranged rows, or similar means. All crops commonly grown except legumes respond well to additions of nitrogen.

CAPABILITY UNIT I-2

In this unit are well-drained, nearly level soils on flood plains. These soils have a friable silt loam and very fine sandy loam surface layer that is underlain by friable silt loam or sandy loam.

These soils are very strongly acid to mildly alkaline, are medium to high in natural fertility, and have moderate to high available water capacity. Roots and water easily penetrate the subsoil. These soils can be easily worked throughout a wide range of moisture content.

The soils in this unit are well suited to the commonly grown crops. Suitable crops are cotton, corn, soybeans, sorghums, small grains, grasses, and legumes. Row crops can be grown every year. Crop residues shredded and left on the surface as a mulch help to maintain tilth and to increase infiltration. Excess surface water can be removed by field drains, properly arranged rows, or similar means. Except for legumes, all crops commonly grown respond well to additions of nitrogen.

CAPABILITY UNIT I-3

Memphis silt loam, 0 to 2 percent slopes, is the only soil in this unit. This soil is well drained and occurs on uplands and terraces. The surface layer of this soil is silt loam and the subsoil is silty clay loam. Erosion is slight.

This soil is strongly acid to very strongly acid, is high in natural fertility, and has high available water capacity. Water and roots easily penetrate the subsoil.

The soil in this unit is well suited to the commonly grown crops. Suitable crops are cotton, corn, soybeans, grain sorghum, small grains, grasses, and legumes. Many kinds of cropping systems are suitable. Row crops can be grown every year, or they can be rotated with grasses and legumes. Crop residues shredded and left on the surface as a mulch help to maintain tilth and to increase infiltration. Excess surface water can be removed by field drains, properly arranged rows, or similar means. Crops respond well to additions of fertilizer and lime.

CAPABILITY UNIT IIe-1

Only Memphis silt loam, 2 to 5 percent slopes, eroded, is in this unit. This gently sloping, well-drained soil is on uplands. The surface layer is silt loam, and the subsoil is silty clay loam. Erosion is moderate.

This soil is strongly acid to very strongly acid, is high in natural fertility, and has high available water capacity. Water and roots easily penetrate the subsoil.

This soil is suited to cotton, corn, soybeans, sorghums, small grains, grasses, and legumes (fig. 3). Although erosion is likely, many cropping systems are suitable. An example is 2 years of row crops and 2 years of grasses and

***Figure 3.*—Pasture of white clover and bermudagrass on Memphis silt loam, 2 to 5 percent slopes, eroded. Pond on right provides water for cattle.**

legumes. Crop residues shredded and left on the surface as a mulch help to maintain tilth and to increase infiltration. Crops respond well to additions of fertilizer and lime. Contour farming, grassed waterways, or similar means are effective in controlling runoff. On the longer slopes, terraces help to reduce soil losses.

CAPABILITY UNIT IIw-1

This unit consists of moderately well drained, nearly level soils on flood plains. These soils have a friable silt loam surface layer and silt loam underlying material. These soils are subject to flooding, generally about once each year. The floods normally last 1 or 2 days, and crop damage is no more than moderate.

These soils are strongly acid to mildly alkaline, are high in natural fertility, and have high available water capacity.

The soils in this unit are suited to the commonly grown crops. Suitable crops are cotton, corn, soybeans, sorghums, small grains, grasses, and legumes. Many kinds of cropping systems are suitable, and row crops can be grown every year. Crop residues shredded and left on the surface as a mulch help to maintain tilth and to increase infiltration. Excess surface water can be removed by field drains and a system of main and lateral ditches. In some areas diversions are needed to control water from adjacent hills. Except for legumes, all crops commonly grown respond well to additions of nitrogen.

CAPABILITY UNIT IIw-2

Bruin silty clay loam is the only soil in this unit. This soil occurs on flood plains and is nearly level and moderately well drained. It has a silty clay loam surface layer and a silt loam or loam subsoil.

This soil is slightly acid to moderately alkaline, is high in natural fertility, and has high available water capacity. Roots and water easily penetrate the subsoil.

This soil is suited to cotton, sorghums, soybeans, small grains, grasses, and legumes. It is poorly suited to corn, alfalfa, crimson clover, sweetclover, and field peas. Row crops can be grown every year or in a cropping system that includes grasses and legumes. Where row crops are grown every year, management is needed that provides a cover crop after each row crop and efficient use of crop

residues. Crop residues shredded and left on the surface as a mulch help to maintain tilth and the content of organic matter. Excess surface water can be removed by field drains, a system of main and lateral ditches, and properly arranged rows. Except for legumes, all crops commonly grown respond well to additions of nitrogen.

CAPABILITY UNIT IIw-3

The soils in this unit occur on flood plains and are nearly level and somewhat poorly drained. They have a friable silt loam surface layer and silt loam underlying material. These soils are likely to be flooded about once each year, normally from 1 to 3 days. Crop damage is no more than moderate.

These soils are strongly acid to mildly alkaline, are medium to high in natural fertility, and have high available water capacity.

The soils in this unit are suited to the commonly grown crops. Suitable crops are cotton, corn, soybeans, sorghums, small grains, grasses, and legumes. Many kinds of cropping systems are suitable, and row crops can be grown every year. Crop residues shredded and left on the surface as a mulch help to maintain tilth and to increase infiltration. Excess surface water can be removed by field drains and a system of main and lateral ditches. Diversions are needed in some areas to control water from adjacent hills. Except for legumes, additions of nitrogen are needed for all crops commonly grown.

CAPABILITY UNIT IIIe-1

Memphis silt loam, 5 to 8 percent slopes, eroded, is the only soil in this unit. It occurs on uplands and is deep and well drained. The surface layer is silt loam, and the subsoil is silty clay loam. Erosion is severe in some places.

This soil is strongly acid, is high in natural fertility, and has high available water capacity. Water and roots easily penetrate the subsoil.

Crops common in the county grow moderately well on this soil. Suitable crops are cotton, corn, soybeans, small grains, sorghums, grasses, and legumes. Because the hazard of erosion is severe, row crops should not be grown every year. An example of the many suitable cropping systems is 2 years of grasses and legumes and 2 years of row crops. The management needed includes effective use of crop residues and, to control runoff and erosion, contour farming, terraces, and grassed waterways. Also needed are additions of lime and fertilizer.

CAPABILITY UNIT IIIw-1

This unit consists of somewhat poorly drained and poorly drained, nearly level soils on flood plains. These soils have a clay surface layer and clay underlying material. Friable material is at a depth of 10 to 36 inches.

These soils are medium acid to moderately alkaline, are high in natural fertility, and have high available water capacity. Infiltration and permeability are slow. These soils harden and crack when dry.

The soils in this unit are well suited to most of the commonly grown crops. Suitable crops are cotton, soybeans, sorghums, small grains, grasses, and legumes. Many kinds of cropping systems are suitable. These soils can be cultivated every year if adequate mechanical practices are used and crop residues are managed well. The crop residues and close-growing crops help to maintain tilth and the content of organic matter. Excess surface water can be removed by properly arranged rows, field drains, and a system of main and lateral ditches. Except for legumes, all crops respond well to additions of nitrogen.

CAPABILITY UNIT IIIw-2

In this unit are excessively drained, nearly level soils on flood plains. These soils have a loamy fine sand surface layer and loamy fine sand to loamy sand underlying material.

These soils are slightly acid to mildly alkaline, are low in natural fertility, and have low available water capacity. Infiltration and permeability are rapid.

Most of the crops common in the county grow fairly well on these soils. Suitable crops are cotton, small grains, common bermudagrass, Coastal bermudagrass, bahiagrass, crimson clover, and early truck crops. Row crops can be grown every year if management provides a cover crop after each row crop, effective use of crop residues, and removal of excess water. Excess water can be removed by properly arranged crop rows. Crop residues should be shredded and left on the surface. Crops respond well to additions of nitrogen and in some places to additions of a complete fertilizer.

CAPABILITY UNIT IIIw-3

Tippo silt loam, 0 to 3 percent slopes, is the only soil in this unit. This soil occurs on low terraces and is somewhat poorly drained. It has a fragipan at a depth of 16 to 20 inches. The surface layer and the subsoil are silt loam.

This soil is strongly acid, is moderate in natural fertility, and has moderately high available water capacity. Permeability is moderate in the upper subsoil and is slow in the fragipan. Infiltration is slow.

This soil is fairly well suited to corn, soybeans, small grains, Coastal bermudagrass, common bermudagrass, fescue, dallisgrass, bahiagrass, wild winter peas, vetch, annual lespedeza, and white clover. Row crops can be grown year after year if excess water is removed and crop residues are used effectively. Crop residues shredded and left on the surface as a mulch help to maintain tilth and the content of organic matter. Excess surface water can be removed by field ditches and properly arranged rows. Diversion ditches are needed in some areas to control runoff from higher areas. All crops commonly grown respond well to added fertilizer and lime. Row crops and pasture plants generally need lime and a complete fertilizer.

CAPABILITY UNIT IIIw-4

Waverly silt loam is the only soil in this unit. This soil occurs on flood plains and is nearly level and poorly drained. It has a friable silt loam surface layer. The underlying material consists of silt loam. This soil is likely to be flooded about once each year, but the floods last for only a short time and damage crops only slightly or moderately. This soil is medium acid to very strongly acid, is moderate in natural fertility, and has high available water capacity. It can be worked only within a narrow range of moisture content.

This soil is suited to Coastal bermudagrass, common ber-

mudagrass, fescue, bahiagress, white clover, and annual lespedeza. It is poorly suited to the commonly grown row crops. The choice of suitable cropping systems is somewhat limited by wetness. Field ditches and main and lateral ditches are effective in removing excess surface water. Crops respond fairly well to additions of lime and fertilizer.

CAPABILITY UNIT IVe-1

This unit consists of sloping to strongly sloping, well-drained soils on uplands. These soils have a silt loam surface layer and a silty clay loam subsoil. Erosion is moderate in some places.

These soils are strongly acid, are high in natural fertility, and have high available water capacity. Runoff is rapid, and erosion is a very severe hazard. Water and roots easily penetrate the subsoil.

Except for corn, most crops common in the county grow moderately well on these soils. Suitable crops are cotton, sorghums, soybeans, small grains, grasses, and legumes. Because the hazard of erosion is severe, row crops should not be grown every year. An example of the many suitable cropping systems is 6 years of grasses and legumes and 2 years of row crops. With this system crop residues must be used effectively. The cropping system can be more intensive if management provides stripcropping, contour farming, terraces, and grassed waterways. Additions of fertilizer and lime are needed for row crops and pasture plants. Because runoff is rapid, moisture available for plant use is limited in some areas.

CAPABILITY UNIT IVw-1

This unit consists of moderately well drained, somewhat poorly drained and poorly drained, nearly level soils on broad flood plains. These soils have a silt loam or clay surface layer and a clay, silty clay, silt loam, or loam subsoil. These soils are on wooded flood plains where drainage systems and flood control structures have not been constructed. They are subject to flooding every year and are waterlogged in the lower areas for long periods.

These soils are strongly acid to moderately alkaline. They have high natural fertility and available water capacity. Runoff is slow.

Because flooding is a hazard, these soils are better suited to hardwoods than to row crops. If adequate drainage systems and flood control structures are installed, row crops can be planted. Then these soils would be suited to the cropping systems suggested for capability units I-1, IIw-1, IIw-3, and IIIw-1.

CAPABILITY UNIT IVs-1

This unit consists of excessively drained, nearly level soils on flood plains. These soils have a sand or loamy fine sand surface layer. The underlying material consists of sandy material.

These soils are medium acid to mildly alkaline, are low in natural fertility, and have low available water capacity. Infiltration and permeability are rapid.

Because these soils are droughty, they are not well suited to row crops or pasture. Although bermudagrass does not grow well, it grows better than most other perennial plants. Suitable trees are green ash, eastern cottonwood, pecan, sugarberry, and American sycamore, and similar hardwoods.

CAPABILITY UNIT VIe-1

This unit consists of moderately steep to very steep, well-drained soils on uplands. Erosion is slight to moderate, but the hazard of further erosion is severe. The surface layer is silt loam, and the subsoil is silty clay loam.

These soils are very strongly acid to mildly alkaline, are high in natural fertility, and have high available water capacity. Runoff is very rapid. Water and roots easily penetrate the subsoil.

These soils are so steep that they are not suited to row crops, but forage plants grow moderately well. Suitable pasture plants are Coastal bermudagrass, common bermudagrass, bahiagrass, sericea lespedeza, and crimson clover. For slowing runoff and controlling erosion, a cover of perennial grasses or of grasses and legumes is needed at all times. Grasses and legumes respond well to additions of fertilizer and lime. Because erosion is a hazard, grazing should be regulated so that the ground cover is sufficient for controlling erosion.

CAPABILITY UNIT VIIe-1

This capability unit consists of soils and a land type that occur in areas so eroded that gullies are dominant. The soil profile has been largely destroyed, except in small areas between the gullies. The soil material is strongly acid to mildly alkaline. It varies in natural fertility and available water capacity.

This soil and land type are not suited to cultivated crops or pasture. They are better suited to pine trees. Reclamation for pasture generally is not practical.

CAPABILITY UNIT VIIe-2

This unit consists of sloping to hilly and very steep soils on rough uplands. These soils do not occur in a regular pattern. They have a brownish silt loam and sandy loam surface layer. The subsoil consists of silty clay loam, sandy clay loam, and clay. Erosion is severe in some places.

These soils are very strongly acid and are moderate to high in available water capacity. They vary in organic-matter content and in natural fertility. Infiltration and permeability are variable. Runoff is very rapid, and erosion is a severe hazard.

These soils are too steep for row crops or pasture, but they are suited to pines and adapted hardwoods. Permanent vegetation is needed for slowing runoff, controlling erosion, and increasing infiltration. Woodland should be protected from fire and unrestricted grazing.

Estimated yields

Table 2 shows, for the arable soils in the county, the estimated average yields of commonly grown crops. The estimates are those obtained under a high level of management that does not include irrigation. Some of the soils in the county are generally not used for crops or pasture and are not listed in table 2. These are the Memphis and Natchez soils that have slopes of more than 17 percent; the severely eroded Memphis soils; the hilly Lucy, Memphis, and Susquehanna soils; Crevasse sand; and the soils in the Crevasse-Bruno complex and the Falaya association. The land type Gullied land is also excluded from table 2.

TABLE 2.—*Estimated average yields per acre of principal crops under a high level of management*

[Absence of yield indicates crop is not commonly grown on the particular soil]

Soil[1]	Cotton	Corn	Oats	Soybeans	Hay: Common bermudagrass	Hay: Johnsongrass	Pasture: Bahiagrass and legumes	Pasture: Common bermudagrass and legumes	Pasture: Coastal bermudagrass and legumes	Pasture: Fescue and legumes
	Lbs.	*Bu.*	*Bu.*	*Bu.*	*Tons*	*Tons*	*Animal-unit-month*[2]	*Animal-unit-month*[2]	*Animal-unit-month*[2]	*Animal-unit-month*[2]
Adler silt loam	825	95	75	35	4.5	7.5	8.0	9.0	12.1	9.7
Bowdre clay	625	45	50	35	4.0	7.0		8.5	10.0	9.5
Bowdre-Sharkey association				30						
Bruin silt loam	825	85	60	35	4.0	7.0		9.0	12.0	10.0
Bruin silty clay loam	800	75	55	35	4.0	7.0		9.0	12.0	10.0
Bruno loamy fine sand	350	25	30		3.5	6.5	5.0	3.5	5.0	
Bruno and Vicksburg soils	475	45	50		3.5	6.5	8.5	8.8	8.5	6.0
Collins silt loam	725	90	65	35	4.5	7.5	9.0	10.8	12.0	9.7
Commerce silt loam	825	90	65	35	4.5	7.5		8.5	12.0	10.0
Commerce silt loam, frequently flooded				35						
Convent silt loam	700	90	70	35	3.5	6.5	8.0	8.3	12.1	8.5
Convent-Adler association				35						
Convent-Bruin association										
Falaya silt loam	670	85	60	35	4.5	6.5	8.0	8.0	10.0	8.5
Memphis silt loam, 0 to 2 percent slopes	800	85	75	35	3.2	6.0	6.5	6.5	10.0	8.5
Memphis silt loam, 2 to 5 percent slopes, eroded	750	80	70	35	2.8	5.5	6.5	6.5	10.0	8.0
Memphis silt loam, 5 to 8 percent slopes, eroded	675	75	70	30	2.8	4.5	6.5	6.5	8.5	7.5
Memphis silt loam, 8 to 17 percent slopes	300	30	25		2.8		5.0	5.5		
Memphis silt loam, 8 to 17 percent slopes, eroded							5.5	5.5		
Morganfield silt loam	850	95	75	40	4.5	7.5	8.0	9.0	12.0	8.5
Newellton clay	600	45	50	30	4.0	7.0		8.5		9.5
Robinsonville very fine sandy loam	800	80	60	20	4.0	7.5		9.0	12.1	10.5
Sharkey clay	400	30	50	30	3.0	6.0		7.5	9.0	9.0
Sharkey-Tunica association				30						
Tippo silt loam, 0 to 3 percent slopes	500	60	55	25	2.5	5.5	7.0	7.0	9.5	8.0
Tunica clay	600	35	55	30	3.0	6.0		8.0	10.0	9.0
Tunica clay, depressed								8.0	8.0	8.0
Tunica-Newellton association				30						
Vicksburg silt loam, local alluvium	750	90	70	35	4.5	7.0	8.2	9.3	12.0	8.5
Waverly silt loam	475	55	50	30	2.5		7.0	6.5		8.0

[1] Only soils generally used for crops or pasture are included in this table.

[2] Animal-unit-months is the number of months during a year that 1 acre will provide grazing for 1 animal, or 1,000 pounds of live weight; or it is the number of months times the number of animal units. For example, Falaya silt loam in a pasture of common bermudagrass and legumes will provide grazing for 4 animals for 2 months and is rated 8 animal-unit-months.

The yields in table 2 are based on estimates by agronomists, soil scientists, and others who have had much experience with crops and soils of Adams County. Data for yields obtained on experimental plots were adjusted to reflect the combined effect of slope and level of management. If such data were not available, estimates were made by using data for similar soils.

The yields given in table 2 can be obtained by (1) applying lime and fertilizer in amounts indicated by soil tests; (2) managing crop residues well; (3) using good practices of tillage; (4) using crop varieties that are suited to the county; (5) using cropping systems similar to those discussed in the section on capability units; and (6) following the practices discussed in the subsection "General practices of management" and applying the management suggested in the subsection "Management by capability units."

Use of Soils as Woodland[3]

About 216,800 acres, or 75.6 percent of the county, is commercial forest. These forests furnish raw materials for local industries, provide jobs for local residents, and contribute to the economy of the county. Moreover, the woodland offers outdoor recreation for hundreds of people in the county.

Most of the timber in the county comes from hardwoods. Sweetgum is the most widely distributed and most important hardwood. Also important are red oaks, white oaks, tupelo-gum, and blackgum. Ash and white elm are of only minor importance. The principal softwoods are loblolly and shortleaf pines.

[3] JOSEPH V. ZARY, woodland conservationist, Soil Conservation Service, assisted in preparing this subsection.

In 1957, growing stock in the county totaled 116.6 million cubic feet (7), of which 87.2 million cubic feet were hardwoods and 29.4 million cubic feet were pines. The sawtimber totaled 493.2 million board feet, of which 338 million board feet were hardwoods and 155.2 million board feet were pines.

Trees in the county are suitable for sawtimber, for logs that are used for veneer of high quality, and for logs that are used in the manufacture of barrels, casks, bolts, handles, and other wood products.

Several large industries in this county use wood. These include several sawmills, each of which has an annual output of 3 million board feet or more. Also in the county are two large pulpmills and one mill that produces shuttleblocks.

Forest types

Forest type is a term used to designate groups or stands of trees that, because of their ecology, are similar in composition and development but differ from other groups or stands. The term suggests repetition of the same composition and character under similar conditions (*6*).

Four major forest types occur in Adams County (*10*), and they occupy 216,800 acres. These forest types are the bottom-land hardwoods, oak-hickory, oak-pine, and loblolly-shortleaf pine.

In the following paragraphs, each major forest type in the county is described, and the soil association in which it occurs is named.

Bottom-land hardwoods.—This major forest type occupies 87,900 acres. It consists mainly of two subtypes, the oak-gum-cypress and the elm-ash-cottonwood.

In the oak-gum-cypress subtype, at least 50 percent of the stand is tupelo, blackgum, sweetgum, oak, or southern cypress. The trees grow singly or in combination. Common associates include cottonwood, willow, ash, elm, hackberry, and maple. This forest subtype occurs principally on soils in the Convent-Adler, Falaya-Collins, and Sharkey-Tunica-Newellton soil associations.

The other forest subtype, the elm-ash-cottonwood, consists of forests in which 50 percent or more of the stand is elm, ash, or cottonwood, growing singly or in combination. Common associates include willow, sycamore, beech, and maple. This forest subtype occurs mainly on soils in the Falaya-Collins, Robinsonville-Crevasse, and Convent-Adler soil associations.

The bottom-land hardwoods forest type occupies the extreme western part of the county and the flood plains of the Homochitto and Mississippi Rivers and their main tributaries.

Oak-hickory.—This type occupies 76,200 acres. It consists of forests in which 50 percent or more of the stand is upland oaks or hickory. The trees grow singly or in combination. Common associates include yellow-poplar, elm, maple, and black walnut.

This forest type occurs mainly on soils in the Memphis and the Gullied land-Natchez-Memphis soil associations. This type is dominant in the southwestern part of the county, but in other places it is intermingled with the oak-pine type.

Oak-pine.—About 29,300 acres is in this forest type. This type consists of forest in which 50 percent or more of the stand is hardwoods, generally upland oaks, and 25 to 49 percent is southern pines. Common associates include gum, hickory, and yellow-poplar.

This forest type occurs chiefly on soils in the Memphis soil association, but it also occurs on soils in the Memphis-Lucy soil association in some places. This type is widely distributed throughout the central, northeastern, and southeastern parts of the county, but it is also intermingled with the loblolly-shortleaf pine and oak-hickory forest types in some places.

Loblolly-shortleaf pine.—This type occupies 23,400 acres. It consists of forest in which 50 percent or more of the stand is loblolly pine, shortleaf pine, or other southern yellow pines except longleaf or slash pine. The trees grow singly or in combination. Common associates include oak, hickory, and gum.

This forest type occurs mainly on soils in the Memphis-Lucy soil association, but it also occurs on soils in the Memphis soil association. This type is dominant in the southeastern part of the county, but in other places it is intermingled with the oak-pine type.

Woodland suitability groups

The soils in Adams County have been grouped according to those characteristics that affect the growth of trees and management of the stand. Each group is made up of soils that have about the same suitability for wood crops, that require about the same management, and that have about the same potential productivity. The soils in each woodland suitability group can be identified by referring to the "Guide to Mapping Units" at the back of this soil survey.

The woodland suitability groups are described in this section. Given for each group are the trees preferred for planting and in existing stands, the site index for specified trees, and some limitations that affect management. The terms used in the descriptions of these groups require explanation.

Potential productivity is expressed as the *site index*. For each woodland suitability group, the site index that is given for all trees except cottonwoods is the average height, in feet, of the dominant trees at 50 years of age. For cottonwoods, the site index is the average height at 30 years.

The site index was estimated after studying the growth of trees on woodland in this county and in other counties where the soils are similar. Each site was selected to represent a specific tree on a particular soil. As nearly as possible, the studies were confined to well-stocked, naturally occurring, even-aged, unmanaged stands that have not been damaged by fire, grazing livestock, insects, or disease.

For some trees, sites suitable for measurement were not available on all kinds of soils in the county. The site indexes were estimated for those trees by using data on the site index for similar soils.

Each woodland suitability group has, in varying degrees, hazards and limitations that affect its management. These limitations are rated *slight*, *moderate*, or *severe*, as explained in the following paragraphs.

The hazard of erosion is determined by the slope, the erodibility of the soil, and soil losses to be expected. It is rated according to the risk of erosion for woodland on which normal management and harvesting are practiced. The rating is *slight* if no special practices are needed. It is *moderate* if some practices that control erosion are needed. The erosion hazard is *severe* if the soil is suscepti-

ble to severe erosion and special practices are needed to control this erosion.

The use of equipment is affected by the slope, water table, drainage, rockiness, and soil texture. The ratings reflect the limitations on the use of ordinary equipment in woodland management. The rating is *slight* if there are no restrictions on the type of equipment or on the time of year the equipment can be used. It is *moderate* if the use of equipment is restricted part of the year, or if some equipment or practices cannot be used. The limitation is *severe* if special equipment and practices are needed.

Seedling mortality is affected by the water table, flooding, drainage, depth and texture of the soil, and the degree of erosion. It refers to the expected loss of planted seedlings when plant competition is not a limiting factor, but rainfall is normal, suitable seedlings are planted, and good planting methods have been used. Mortality is *slight* if less than 25 percent of the planted seedlings are expected to die and is *moderate* if this percentage is between 25 and 50. Mortality is *severe* if more than 50 percent of the planted seedlings are expected to die.

Plant competition refers to the degree that unwanted trees, shrubs, vines, and grass are likely to invade when openings are made in the canopy. Soil properties that affect plant competition include available moisture capacity, the degree of erosion, and drainage. Competition is *slight* if undesirable plants do not delay the establishment of a normal fully stocked stand. It is *moderate* if the invaders delay the establishment of a desirable stand. Competition is *severe* if competing plants prevent the establishment of a desirable stand, unless there is intensive site preparation and maintenance.

WOODLAND SUITABILITY GROUP 1

This group consists of nearly level silt loams that are nonacid and occur on flood plains. These soils are somewhat poorly drained and are high in natural fertility and available water capacity.

The trees preferred in existing stands are green ash, eastern cottonwood, sweetgum, sugarberry, and American sycamore. Trees preferred for planting are green ash, eastern cottonwood, and sweetgum (fig. 4).

The site index ranges from 105 to 115 for eastern cottonwood and from 100 to 110 for sweetgum.

Plant competition is severe, and erosion hazard and seedling mortality are slight. The equipment limitation is moderate. At times in winter and spring, the soils in this group are flooded and the use of normal equipment is limited.

WOODLAND SUITABILITY GROUP 2

This group consists of deep, nearly level silt loams that are nonacid and occur on flood plains. These soils are moderately well drained to well drained and are high in natural fertility and available water capacity.

The trees preferred in existing stands are eastern cottonwood, common persimmon, sugarberry, sweetgum, and American sycamore. Trees preferred for planting are eastern cottonwood, sweetgum, and American sycamore.

The site index ranges from 110 to 120 for eastern cottonwood and from 100 to 110 for sweetgum.

Plant competition is severe, and seedling mortality, erosion hazard, and equipment limitation are slight.

Figure 4.—**A stand of sweetgum on Convent-Bruin association.**

WOODLAND SUITABILITY GROUP 3

This group consists of deep, nearly level, medium-textured soils on flood plains. These soils are acid, moderately well drained to well drained, and are high in natural fertility and available water capacity.

The trees preferred in existing stands are eastern cottonwood, willow oak, cherrybark oak, Shumard oak, water oak, sweetgum, American sycamore, loblolly pine, and yellow-poplar. Trees preferred for planting are eastern cottonwood, cherrybark oak, sweetgum, American sycamore, and yellow-poplar.

The site index is 110 to 120 for eastern cottonwood, 105 to 115 for cherrybark oak and sweetgum, 100 to 110 for willow oak, and 100 to 110 for loblolly pine.

Plant competition is severe. Seedling mortality, erosion hazard, and equipment limitation are slight.

WOODLAND SUITABILITY GROUP 4

This group consists of nearly level silt loams on flood plains. These soils are acid, somewhat poorly drained, and moderately high in natural fertility and available water capacity.

The trees favored in existing stands are green ash, baldcypress, eastern cottonwood, cherrybark oak, Nuttall oak, swamp chestnut oak, water oak, willow oak, sweetgum, American sycamore, loblolly pine, shortleaf pine, and yellow-poplar. Trees preferred for planting are green ash, baldcypress, eastern cottonwood, cherrybark oak, sweetgum, and American sycamore.

The site index is 105 to 115 for eastern cottonwood, 95 to 105 for cherrybark oak, 88 to 106 for loblolly pine, 80 to 90 for shortleaf pine, and 100 to 110 for sweetgum.

Plant competition is severe. The erosion hazard, equipment limitation, and seedling mortality are slight.

WOODLAND SUITABILITY GROUP 5

Waverly silt loam is the only soil in this woodland group. This soil occurs on flood plains and is nearly level and poorly drained. It is acid, is low in natural fertility, and high in available water capacity.

The trees preferred in existing stands are loblolly pine, green ash, baldcypress, eastern cottonwood, cherrybark oak, Nuttall oak, swamp chestnut oak, water oak, willow oak, sweetgum, American sycamore, and yellow-poplar. Trees preferred for planting are green ash, baldcypress, eastern cottonwood, cherrybark oak, sweetgum, and American sycamore.

The site index is 90 to 110 for eastern cottonwood, 85 to 95 for cherrybark oak, 85 to 103 for loblolly pine, and 100 to 110 for sweetgum.

Plant competition and equipment limitation are severe, and the erosion hazard and seedling mortality are slight.

WOODLAND SUITABILITY GROUP 6

This group consists of deep, coarse-textured to medium-textured soils that occur on flood plains and are nearly level and excessively drained. These soils are low in natural fertility and available water capacity.

The trees favored in existing stands are black cherry, eastern cottonwood, southern magnolia, cherrybark oak, Shumard oak, white oak, willow oak, pecan, sweetgum, American sycamore, and yellow-poplar. Trees preferred for planting are eastern cottonwood, cherrybark oak, Shumard oak, sweetgum, American sycamore, and yellow-poplar.

The site index ranges from 110 to 120 for eastern cottonwood and from 90 to 100 for cherrybark oak, willow oak, and sweetgum.

Plant competition, erosion hazard, seedling mortality, and equipment limitation are slight.

WOODLAND SUITABILITY GROUP 7

This group consists of deep, nearly level sands on flood plains. These soils are excessively drained and are low in natural fertility and available water capacity.

The trees favored in existing stands are green ash, eastern cottonwood, pecan, sugarberry, and American sycamore. Trees preferred for planting are green ash, eastern cottonwood, and American sycamore.

The site index ranges from 90 to 100 for eastern cottonwood.

Plant competition, erosion hazard, seedling mortality, and equipment limitation are slight.

WOODLAND SUITABILITY GROUP 8

This group consists of nearly level silt loams and silty clay loams that are nonacid and occur on flood plains. These soils are moderately well drained to somewhat poorly drained and are high in natural fertility and available water capacity.

The trees preferred in existing stands are green ash, baldcypress, eastern cottonwood, sugarberry, cherrybark oak, water oak, pecan, sweetgum, American sycamore, and black willow. Trees preferred for planting are green ash, baldcypress, eastern cottonwood, sweetgum, and American sycamore.

The site index is 110 to 120 for eastern cottonwood, 90 to 100 for cherrybark oak, 95 to 105 for water oak, and 100 to 110 for willow oak and sweetgum.

Plant competition is severe, and the erosion hazard is slight. Equipment limitation and seedling mortality generally are slight where flooding is not too severe.

WOODLAND SUITABILITY GROUP 9

Only Robinsonville very fine sandy loam is in this group. This soil occurs on flood plains and is nearly level and nonacid. It is well drained, high in natural fertility, and moderate in available water capacity.

The trees favored in existing stands are green ash, eastern cottonwood, pecan, sugarberry, sweetgum, and American sycamore. Trees preferred for planting are green ash, eastern cottonwood, sweetgum, and American sycamore.

The site index ranges from 110 to 120 for eastern cottonwood and from 100 to 110 for sweetgum.

Plant competition, erosion hazard, seedling mortality, and equipment limitation are slight.

WOODLAND SUITABILITY GROUP 10

This group consists of nearly level soils that have a clay surface layer and are underlain by moderately coarse textured to moderately fine textured soil material. These soils are somewhat poorly drained to poorly drained and are high in natural fertility and available water capacity.

The trees preferred in existing stands are eastern cottonwood, red maple, cherrybark oak, Nuttall oak, Shumard oak, swamp chestnut, water oak, willow oak, pecan, sweetgum, and American sycamore. Trees preferred for planting are eastern cottonwood, cherrybark oak, Nuttall oak, sweetgum, and American sycamore.

The site index is 90 to 100 for eastern cottonwood, cherrybark oak, and sweetgum and 95 to 105 for willow oak.

Plant competition, equipment limitation, and seedling mortality are severe. The erosion hazard is slight.

WOODLAND SUITABILITY GROUP 11

This group consists of nearly level, clayey soils on flood plains. These soils are poorly drained and are high in natural fertility and available water capacity.

The trees favored in existing stands are green ash, baldcypress, eastern cottonwood, red maple, cherrybark oak, Nuttall oak, overcup oak, water oak, willow oak, sweetgum, and American sycamore. Trees preferred for planting are green ash, baldcypress, eastern cottonwood, cherrybark oak, Nuttall oak, sweetgum, and American sycamore.

The site index is 90 to 100 for eastern cottonwood, water oak, and sweetgum, 95 to 100 for cherrybark oak, and 85 to 95 for willow oak.

Plant competition, seedling mortality, and equipment limitation are severe. The erosion hazard is slight.

WOODLAND SUITABILITY GROUP 12

Tippo silt loam, 0 to 3 percent slopes, is the only soil in this group. This soil occurs on uplands and is nearly level and somewhat poorly drained. It has a weak fragipan, is moderate in natural fertility, and moderately high in available water capacity.

The trees favored in existing stands are green ash, cherrybark oak, Shumard oak, swamp chestnut oak, water oak, white oak, willow oak, sweetgum, American sycamore,

and yellow-poplar. Trees preferred for planting are loblolly pine, green ash, cherrybark oak, sweetgum, American sycamore, and yellow-poplar.

The site index is 80 to 90 for cherrybark oak and sweetgum, 75 to 85 for water oak, and 90 to 100 for loblolly pine.

Plant competition is severe for plantings. The erosion hazard, seedling mortality, and equipment limitation are slight.

WOODLAND SUITABILITY GROUP 13

This group consists of nearly level to very steep soils that are uneroded, eroded, and gullied. These soils occur on uplands, and slopes range from 0 to 60 percent. These soils are well drained and are high in natural fertility and available water capacity.

The trees preferred in existing stands are green ash, American basswood, black cherry, eastern cottonwood, southern magnolia, cherrybark oak, Shumard oak, southern red oak, swamp chestnut oak, water oak, white oak, willow oak, loblolly pine, sweetgum, American sycamore, black tupelo, and yellow-poplar. Trees preferred for planting are green ash, eastern cottonwood, cherrybark oak, Shumard oak, loblolly pine, shortleaf pine, sweetgum, American sycamore, and yellow-poplar.

The site index is 100 to 110 for eastern cottonwood, 110 to 120 for cherrybark oak, 95 to 105 for loblolly pine, 80 to 90 for shortleaf pine, and 105 to 115 for sweetgum. The site index is higher on the middle and lower slopes than on the upper slopes.

Plant competition is severe for plantings on the lesser slopes. Seedling mortality is slight. Erosion hazard and equipment limitation are slight on the lesser slopes and are severe on the steeper slopes.

WOODLAND SUITABILITY GROUP 14

This group consists of sloping to very steep soils that are eroded, severely eroded, and gullied. These soils occur on uplands, and slopes range from 8 to 60 percent. These soils are well drained and high in natural fertility and available water capacity.

The trees preferred in existing stands include cherrybark oak, Shumard oak, southern red oak, white oak, shortleaf pine, and loblolly pine. Loblolly pine is preferred for planting.

The site index ranges from 85 to 95 for loblolly pine and from 70 to 80 for shortleaf pine.

The erosion hazard and equipment limitation are severe. Seedling mortality and plant competition are slight for plantings.

WOODLAND SUITABILITY GROUP 15

This group consists of sloping to steep, medium-textured to coarse-textured soils on uplands. Slopes range from 8 to 45 percent. These soils are somewhat poorly drained and well drained, low in natural fertility, and moderate to moderately high in available water capacity.

The most suitable trees in existing stands are loblolly pine, shortleaf pine, and southern red oak. Loblolly pine is preferred for planting.

The site index ranges from 75 to 85 for loblolly pine and from 65 to 75 for shortleaf pine.

Seedling mortality and plant competition are moderate for plantings. The erosion hazard and equipment limitation are severe.

320—512—70——3

Use of Soils for Woodland Grazing[4]

The woodland in Adams County is used primarily for producing timber and secondarily for grazing cattle. Of the 216,800 acres of woodland in the county, about 59 percent is in upland hardwoods and can be grazed seasonally or all year. This grazing does not appreciably damage the timber, and in addition to supporting cattle, it reduces the fire hazard and helps control unwanted hardwoods, brush, and vines. Although some areas of bottom-land hardwoods are grazed, this grazing is not advisable, for the cattle browse selectively and are likely to damage the better seedlings and saplings.

Adams County has a stock law, and most of the woodland is fenced. The forage is used mostly to supplement improved pasture, for it does not provide an adequate year-round diet for livestock. Livestock can be kept in a satisfactory condition by feeding steamed bonemeal all year, utilizing native forage during seasons when it is most nutritious and supplementing the native forage with feed that is high in protein. Protein is deficient in native forage from October through March. Of the 10,000 cattle in the county in 1965, about 7,500 were at least partly supported by woodland forage (*4*). Beef cattle can use this forage better than can dairy cattle.

Principles of forage management

Livestock graze selectively by seeking the most palatable and nutritious plants. These are generally the tall, broad-leaved, deep-rooted perennial plants, or decreasers. Unless grazing is carefully regulated, the decreasers are weakened or killed. Less desirable perennial plants, or increasers, then increase and become dominant. These increasers generally are palatable for only a few weeks in spring, and they are more shallow rooted and less productive than the decreasers. If heavy grazing continues, even increasers are weakened or killed, and undesirable weeds and grasses, or invaders, take their place. Invaders furnish almost no usable forage.

Grazing must be regulated so as to allow for the natural processes of growth. Then the forage plants remain vigorous and grazing animals gain in weight. The stages of these processes are successive, though overlapping. They are growth of roots, growth of stems and leaves, formation of flower stalks and seed, regrowth of leaves, and storage of food in the roots. If grazing prevents these processes from continuing, the woodland forage deteriorates. Under good grazing management, the processes are not restrained and vigorous, deep-rooted, perennial plants, or decreasers, replace the shallow-rooted increasers and invaders. Improving woodland forage may require several years or only a few years, depending on the intensity of management and the growing conditions. Vigorous stands of forage quickly recover from occasional overuse.

The better forage plants grow well if not more than half the growth in a current season is grazed. The foliage left on the plant continues to produce food for regrowth, for root development, for seed production, and for storage in the roots. The forage left on the ground serves as a mulch to protect the land from erosion, aids in the rapid intake of water, and prevents rapid drying of the soil. A

[4] DAVID W. SANDERS, range conservationist, Soil Conservation Service, assisted in preparing this section.

good stand of grass provides reserve feed during droughts that might otherwise force the sale of livestock at a loss.

Woodland forage sites, forage condition, and timber canopy

A woodland forage site is made up of soils that differ from the soils in other sites in their ability to produce a significantly different kind or amount of climax, or original, vegetation. Climax vegetation is the potential ground cover. A significant difference is one large enough to require different grazing use or management. Woodland forage sites are used primarily for the production of timber, but they generally support native grasses and other forage plants that may be used by livestock and game.

In estimating the condition of a woodland forage site, the present kinds and amounts of forage on the site are compared with the potential, or climax, forage for that site. Four classes of forage condition are recognized—excellent, good, fair, and poor. A woodland forage site in excellent condition has 76 to 100 percent of the forage that is characteristic of the climax forage. One in good condition has 51 to 75 percent; one in fair condition has 26 to 50 percent; and one in poor condition has less than 26 percent.

Classifying the density of the timber canopy is useful because growth of forage plants under the canopy decreases as the amount of shade increases. Timber canopy is classified in four density classes: Dense, 76 to 100 percent shade; medium, 51 to 75 percent; sparse, 26 to 50 percent; and open, less than 26 percent. As density increases from open to sparse, the forage production is reduced by about 20 percent. Only about 55 percent as much forage is produced under a medium canopy as under an open one. Little or no forage is produced under a dense timber canopy.

The kinds of soil, kinds of plants, amount of shade, and amount and distribution of rainfall influence forage production more than any other factors. Average rainfall in Adams County is 58 to 60 inches per year, of which about 32 inches comes during the growing season. Trees and forage plants use only as much of this rainfall as soaks into the soils. This amount of water can be increased by the grass mulch that is left when only half of the annual forage is grazed. The mulch also protects the woodland from erosion and from drying out.

Woodland forage sites in Adams County

The soils in Adams County that support woodland forage have been placed in three woodland forage sites—Deep Loess Hills, Deep Loess Steep Hills, and Loess Wet Lands. In the descriptions of these sites that follow, the soils in the sites are described and plants commonly on them are named. Also given are the principal decreasers, increasers, and invaders and an estimate of the annual production of forage. The mention of soil series does not mean that all the soils in the series are in the woodland forage site. To find the names of the soils in any site, refer to the "Guide to Mapping Units" at the back of this survey.

DEEP LOESS HILLS WOODLAND FORAGE SITE

This woodland forage site consists of deep, well-drained, nearly level to sloping Memphis soils. These soils have a silt loam surface layer and generally a silty clay loam subsoil. They are high in natural fertility and available water capacity. Water moves through the soil at a moderate rate. If not protected by a vegetative cover, these soils are very susceptible to sheet and gully erosion.

The overstory on this site consists of sweetgum, hickory, and yellow-poplar; the oaks, cherrybark, Shumard, white, water, willow, and southern red; and the pines, loblolly and shortleaf.

The understory is chiefly huckleberry, dogwood, vines, and honeysuckle. Honeysuckle is readily grazed by livestock, especially in fall and winter.

The potential ground cover, or climax vegetation, is 80 percent decreasers, 17 percent increasers, and 3 percent invaders. The principal decreasers are pine hill bluestem, switch cane, longleaf uniola, perennial lespedeza, and perennial tickclover. Pinehill bluestem, switch cane, and longleaf uniola are dominant. The most common increasers are low panicum, beaked panicum, sedges, rushes, and carpetgrass. Invaders are broomsedge, bluestem, annual grasses, and annual and perennial weeds.

When this site is in excellent condition, annual production is about 3,500 pounds of air-dry forage per acre in areas without an overstory.

DEEP LOESS STEEP HILLS WOODLAND FORAGE SITE

This woodland forage site consists of deep, well-drained, moderately steep to very steep soils on rough hills in areas dissected by drainageways and some gullies. The gullies generally have formed in the extreme western and northeastern parts of the county. In this site are Gullied land and soils of the Lucy, Memphis, Natchez, and Susquehanna series. They have a surface layer of silt loam and a subsoil of silt loam to silty clay loam. Natural fertility and available water capacity are high. Water moves through the soil at a moderate rate. These soils are very susceptible to sheet and gully erosion when not protected by a vegetative cover.

The overstory consists of sweetgum, hickory, magnolia, and yellow-poplar; the oaks, cherrybark, white, and southern red; and the pines, loblolly and shortleaf.

The understory consists chiefly of huckleberry, dogwood, vines, and honeysuckle. Honeysuckle is readily grazed by livestock, especially in fall and winter.

The potential ground cover, or climax vegetation, is 80 percent decreasers, 17 percent increasers, and 3 percent invaders. The principal decreasers are longleaf uniola, switch cane, perennial lespedeza, and perennial tickclover. Longleaf uniola and switch cane are dominant. The most common increasers are low panicum, beaked panicum, sedges, and rushes. Invaders consist of annual grasses and annual and perennial weeds.

When this site is in excellent condition, annual production is about 2,500 pounds of air-dry forage per acre in areas without an overstory.

LOESS WET LANDS WOODLAND FORAGE SITE

This woodland forage site consists of well-drained to poorly drained, nearly level and gently sloping soils in alluvium. These soils are in the Bruno, Collins, Falaya, Tippo, Vicksburg, and Waverly series. They have a silt loam surface layer and generally a silt loam subsoil. Tippo soils are on old alluvial terraces and have a fragipan below a depth of 20 inches. Available water capacity is high,

and water moves through the soil at a slow to moderate rate. These soils are subject to flooding, generally in winter and early in spring.

The overstory consists of cottonwood, black willow, sycamore, sweetgum, water oak, willow oak, green ash, swamp chestnut oak, yellow-poplar, and loblolly pine.

The understory consists of hawthorn, witch-hazel, vines, and honeysuckle. Honeysuckle is readily grazed by livestock, especially in fall and winter.

The potential ground cover, or climax vegetation, is 85 percent decreasers, 10 percent increasers, and 5 percent invaders. The principal decreasers are pinehill bluestem, switchgrass, and switch cane. Pinehill bluestem and switch cane are dominant. The most common increasers are low panicum, beaked panicum, perennial three-awn, and carpetgrass. Invading plants are broomsedge, bluestem, annual grasses, and annual and perennial weeds.

When this site is in excellent condition, annual production is about 3,000 pounds of air-dry forage per acre in areas without an overstory.

Engineering Uses of Soils[5]

Engineers are especially interested in soil properties that affect the construction and maintenance of roads, airports, pipelines, building foundations, facilities for water storage, structures for erosion control, drainage systems, and sewage disposal systems. Among the properties most important are permeability to water, shear strength, compaction characteristics, soil drainage, shrink-swell potential, grain size, plasticity, and reaction. Depth to the water table, available water capacity, and topography are also important. The information in this survey can be used to—

1. Make soil and land use studies that will aid in selecting and developing industrial, business, residential, and recreational sites.
2. Make preliminary estimates of the engineering properties of soils in the planning of agriculture drainage systems, farm ponds, irrigation systems, terraces and diversions, and land leveling.
3. Make preliminary evaluations of soil and ground conditions that will aid in selecting locations for highways, airports, pipelines, and cables and in planning detailed investigations at the selected locations.
4. Locate probable sources of sand and gravel and other material suitable for construction.
5. Correlate performance of engineering structures with soil mapping units, and thus develop information that will be useful in designing and maintaining the structures.
6. Determine the suitability of soil mapping units for cross-country movement of vehicles and construction equipment.
7. Supplement the information obtained from other published maps and reports and aerial photographs for the purpose of making maps and reports that can be used readily by engineers.
8. Develop other preliminary estimates for construction purposes pertinent to the particular area.

[5] Paul A. Calhoun, agricultural engineer, Soil Conservation Service, assisted in the writing of this section.

With the use of the soil map for identification, the engineering interpretations in this section can be useful for many purposes. It should be emphasized, however, that the interpretations may not eliminate the need for sampling and testing at the site of specific engineering works where loads are heavy and where the excavations are deeper than here reported. Even in these situations, the soil map is useful for planning more detailed field investigations and for suggesting the kinds of problems that may be expected.

Some of the terms used by soil scientists may not be familiar to the engineer, and some terms may have special meaning in soil science. Several of these terms are defined in the Glossary at the back of this survey.

Much of the information in this section is given in tables 3, 4, and 5, but additional information useful to engineers can be found in other sections of this soil survey, particularly the sections "Descriptions of Soils" and "Formation and Classification of Soils."

Engineering classification systems

Two systems of classifying soils are in general use among engineers. Both are used in this soil survey.

Many highway engineers classify soil material according to the system approved by the American Association of State Highway Officials (AASHO) (*1*). In this system, classification is based on physical properties of the soil material and on the field performance of the soils in highways. Soil material is classified in several principal groups. The groups range from A–1, consisting of gravelly soils of high bearing capacity, to A–7, consisting of clay soils having low strength when wet. Within each group, the relative engineering value of the soil material is indicated by a group index number. Group index numbers range from 0 for the best material to 20 for the poorest. The estimated AASHO classification of the soils in this county, without the group index number, is given in table 3. The group index number for the soils tested is given in table 5.

Some engineers prefer to use the Unified Soil Classification System (*12*). This system is based on the identification of soils according to their texture and plasticity and their performance as material in engineering structures. Soil material is identified as coarse grained (eight classes), fine grained (six classes), or highly organic. Table 3 shows the estimated Unified classification of the soils in the county.

Engineering properties of soils

Estimated in table 3, generally by layers, are soil properties important in engineering, engineering and textural classification of soil material, and percentage of soil material passing sieves of three sizes.

The estimates of depth and duration of a seasonal high water table were based on the drainage class of the soils, field observations, and the judgment of soil scientists familiar with the soils of the county.

Under the column headed "Flood hazard" are estimates of the frequency and duration of flooding caused by overflowing streams, runoff, or seepage. These estimates were based on information obtained in hydrological surveys made by Geological Survey, Corps of Engineers, and other agencies.

TABLE 3.—*Estimated engineering*

Soil series and map symbols	Depth to seasonal high water table	Flood hazard	Depth from surface	Classification
				USDA texture
			Inches	
Adler (Ad)	30 to 60 inches for 1 to 2 months each year.	Once in 1 to 5 years for 7 days to 2 months.	0–48	Silt loam
Bowdre (Bc, BS) (For properties of Sharkey soils in mapping unit BS, refer to the Sharkey series.)	15 to 30 inches for 2 to 6 months each year.	More than once every year for 1 to 6 months.	0–9 9–17 17–48	Clay Silty clay Silt loam to fine sandy loam
Bruin:				
(Bn)	30 to 60 inches for 1 to 2 months each year.	Once in 1 to 5 years for 7 days to 1 month.	0–6 6–21 21–50	Silt loam Loam or very fine sandy loam Silt loam
(Br)	30 to 60 inches for 1 to 2 months each year.	Once in 1 to 5 years for 7 days to 1 month.	0–5 5–21 21–50	Silty clay loam Loam or very fine sandy loam Silt loam
Bruno (Bu, BV) (For properties of Vicksburg soils in mapping unit BV, refer to the Vicksburg series.)	30 to 60 inches for 1 to 2 months each year.	More than once every year for 7 days to 6 months.	0–48	Loamy fine sand and loamy sand.
Collins (Co)	30 to 60 inches for 1 to 2 months each year.	Once in 1 to 5 years for 2 to 7 days.	0–44	Silt loam
Commerce:				
(Cs)	15 to 60 inches for 2 to 6 months each year.	Once in 1 to 5 years for 7 days to 1 month.	0–11 11–32 32–50	Silt loam and very fine sandy loam. Silty clay loam and silt loam Silt loam
(Cr)	15 to 60 inches for 2 to 6 months each year.	More than once every year for 1 to 6 months.	0–11 11–32 32–50	Silt loam Silty clay loam Silt loam
Convent (Cv, CA, CB) (For properties of Adler soils in mapping unit CA, refer to the Adler series; for properties of Bruin soils in mapping unit CB, refer to the Bruin series.)	15 to 30 inches for 2 to 6 months each year.	More than once every year for 7 days to 1 month.	0–50	Silt loam
Crevasse (Cw, Cx) (For properties of Bruno soils in mapping unit Cx, refer to the Bruno series.)	60 to 120 inches for 1 to 2 months each year.	More than once every year for 1 to 6 months.	0–50	Sand
Falaya:				
(Fa)	15 to 30 inches for 1 to 6 months each year.	Once in 1 to 5 years for 7 days to a month.	0–48	Silt loam
(FF)	15 to 30 inches for 2 to 6 months each year.	More than once every year for 7 days to 1 month.	0–48	Silt loam
Gullied land (Gu, GxF). (Properties of Gullied land too variable to be rated; for properties of Natchez soils in mapping unit GxF, refer to the Natchez series.)				
Lucy (LME) (For properties of Memphis soils in mapping unit LME, refer to the Memphis series.)	More than 120 inches.	None.	0–27 27–60	Loamy fine sand Sandy clay loam and fine sandy loam.

See footnote at end of table.

properties of soils

Classification—Continued		Percentage passing sieve—			Permeability	Available water capacity	Shrink-swell potential	Reaction [1]
Unified	AASHO	No. 4 (4.7 mm.)	No. 10 (2.0 mm.)	No. 200 (0.074 mm.)				
					Inches per hour	*Inches per inch of soil*		*pH*
ML	A-4	100	100	80-100	0. 63-2. 0	0. 23	Low.	6. 5-7. 5
CH	A-7	100	100	90-100	<0. 2	0. 19	High.	6. 5-8. 0
CH	A-7	100	100	80-100	<0. 2	0. 19	High.	
ML	A-4	100	100	80-100	2. 0-6. 3	0. 22-0. 08	Low.	
ML	A-4	100	100	80-100	0. 63-2. 0	0. 23	Low.	6. 5-8. 0
ML	A-4	100	100	60-75	0. 63-2. 0	0. 23	Low.	
ML	A-4	100	100	80-100	0. 63-2. 0	0. 23	Low.	
CL	A-6	100	100	90-100	0. 2-0. 63	0. 21	Moderate.	6. 5-8. 0
ML	A-4	100	100	60-75	0. 63-2. 0	0. 23	Low.	
ML	A-4	100	100	80-100	0. 63-2. 0	0. 23	Low.	
SM, ML	A-2, A-4	100	100	15-55	>6. 3	0. 05-0. 1	Low.	6. 5-7. 5
ML	A-4	100	100	80-100	0. 63-2. 0	0. 23	Low.	4. 5-5. 5
ML, CL	A-4	100	100	80-100	0. 2-0. 63	0. 22	Low.	6. 5-8. 0
ML, CL	A-4, A-6	100	100	90-100	0. 63-2. 0	0. 17	Low.	
ML, CL	A-6	100	100	80-100	0. 63-2. 0	0. 22	Low.	
ML, CL	A-4	100	100	80-100	0. 2-0. 63	0. 22	Low.	6. 5-8. 5
ML, CL	A-4, A-6	100	100	90-100	0. 63-2. 0	0. 17	Low.	
ML, CL	A-4	100	100	80-100	0. 63-2. 0	0. 22	Low.	
ML	A-4 or A-6	100	100	80-100	0. 63-2. 0	0. 23	Low.	6. 5-8. 0
SM	A-2	100	100	15-25	>6. 3	0. 08	Low.	6. 5-7. 5
ML	A-4	100	100	80-100	0. 63-2. 0	0. 23	Low.	4. 5-5. 5
ML	A-4	100	100	80-100	0. 63-2. 0	0. 23	Low.	4. 5-5. 5
SM	A-2	100	100	15-25	>6. 3	0. 05-0. 10	Low.	4. 5-5. 5
CL	A-4, A-6	100	100	50-70	6. 3-2. 0	0. 15-0. 20	Low.	

TABLE 3.—*Estimated engineering*

Soil series and map symbols	Depth to seasonal high water table	Flood hazard	Depth from surface	Classification
				USDA texture
			Inches	
Memphis (MeA, MeB2, MeC2, MeD, MeD2, MeF2, MeF3, MGE, MnF, MSE). (Gullied land part of mapping unit MGE not rated; for properties of Natchez soils in mapping unit MnF, refer to the Natchez series; for properties of Susquehanna soils in mapping unit MSE, refer to the Susquehanna series.)	More than 120 inches.	None.	0–8	Silt loam
			8–24	Silty clay loam
			24–64	Silt loam
Morganfield (Mo)	30 to 60 inches for 1 to 2 months each year.	Once in 5 to 20 years for less than 2 days.	0–50	Silt loam
Natchez	More than 120 inches.	None.	0–4	Silt loam
			4–48	Silt loam
			48–60	Silt loam
Newellton (Ne)	15 to 30 inches for 2 to 6 months each year.	More than once every year for 1 to 6 months.	0–11	Clay
			11–16	Silty clay loam
			16–50	Silt loam
Robinsonville (Ro)	30 to 60 inches for 1 to 2 months each year.	More than once every year for 1 to 6 months.	0–20	Very fine sandy loam.
			20–70	Fine sandy loam to loamy fine sand.
Sharkey (Sh, ST) (For properties of Tunica soils in mapping unit ST, refer to the Tunica series.)	0 to 30 inches for 2 to 6 months each year.	More than once every year for 1 to 6 months.	0–49	Clay
Susquehanna	15 to 30 inches for 1 to 2 months each year.	None.	0–6	Loam
			6–45	Clay
Tippo (TaA)	15 to 30 inches for 2 to 6 months each year.	None.	0–48	Silt loam
Tunica (Tc, Tp, TN) (For properties of Newellton soils in mapping unit TN, refer to the Newellton series.)	0 to 30 inches for 2 to 6 months each year.	More than once every year for 1 to 6 months.	0–28	Clay
			28–40	Loam
Vicksburg (Vc)	30 to 60 inches for 2 to 6 months each year.	Once in 1 to 5 years for 7 days to 1 month.	0–33	Silt loam
			33–50	Silty clay loam
Waverly (Wa)	0 to 15 inches for 2 to 6 months each year.	More than once every year for 7 days to 1 month.	0–48	Silt loam

[1] Reaction (pH) is for entire profile.

properties of soils—Continued

Classification—Continued		Percentage passing sieve—			Permeability	Available water capacity	Shrink-swell potential	Reaction [1]
Unified	AASHO	No. 4 (4.7 mm.)	No. 10 (2.0 mm.)	No. 200 (0.074 mm.)				
					Inches per hour	*Inches per inch of soil*		*pH*
ML or ML–CL	A–4	100	100	80–100	0. 63–2. 0	0. 23	Low.	4. 5–6. 0
CL	A–6	100	100	90–100	0. 63–2. 0	0. 21	Moderate.	
ML–CL	A–4 or A–6	100	100	80–100	0. 63–2. 0	0. 23	Low.	
ML	A–4	100	100	80–100	0. 63–2. 0	0. 23	Low.	6. 5–7. 8
ML	A–4	100	100	80–100	0. 63–2. 0	0. 23	Low.	5. 6–7. 5
ML–CL	A–4	100	100	80–100	0. 63–2. 0	0. 23	Low.	
ML	A–4	100	100	80–100	0. 63–2. 0	0. 23	Low.	
CH	A–7	100	100	90–100	<0. 20	0. 19	High.	7. 0–8. 0
ML or CL	A–4 or A–6	100	100	90–100	0. 20–0. 63	0. 17	Moderate.	
ML	A–4	100	100	80–100	0. 63–6. 3	0. 22–0. 08	Low.	
ML	A–4	100	100	70–85	0. 63–2. 0	0. 22–0. 15	Low.	6. 6–8. 0
ML, SM	A–2, A–4	100	100	30–55	2. 0–6. 3	0. 15–0. 08	Low.	
CH	A–7–6	100	100	90–100	<0. 20	0. 19	High.	6. 6–7. 5
ML–CL, SC	A–4	100	100	45–60	0. 63–2. 0	0. 10–0. 15	Low.	4. 5–5. 0
CH, MH	A–7	100	100	90–100	<0. 20	0. 15–0. 20	High.	
ML	A–4	100	100	80–100	0. 63–0. 20	0. 23	Low.	4. 5–5. 6
MH–CH	A–7–6	100	100	90–100	<0. 20	0. 19	High.	6. 1–7. 5
ML–CL	A–4	100	100	50–70	0. 20–0. 63	0. 21	Moderate.	
ML	A–4	100	100	80–100	0. 63–2. 0	0. 23	Low.	4. 5–5. 5
ML–CL	A–6, A–4	100	100	90–100	0. 63–2. 0	0. 21	Low.	
ML	A–4	100	100	80–100	0. 63–2. 0	0. 23	Low.	4. 5–5. 5

TABLE 4.—*Engineering*

Soil series and map symbols	Suitability as source of—		Degree and kinds of limitations for—	
	Topsoil	Road fill	Septic tank filter fields	Sewage lagoons
Adler (Ad)	Good	Fair	Severe: Frequent flooding; moderately high water table.	Moderate: Moderate permeability; good berm material; frequent flooding.
Bowdre (Bc, BS) (For interpretations for Sharkey soils in mapping unit BS, refer to the Sharkey series.)	Poor	Poor	Severe: High water table; slow permeability to a depth of 20 inches; very frequent flooding.	Moderate: Moderately rapid permeability in lower subsoil; very frequent flooding.
Bruin:				
(Bn)	Good	Fair to good	Severe: Moderately high water table; frequent flooding.	Moderate: Moderate permeability; frequent flooding.
(Br)	Fair	Fair to good	Severe: Moderately high water table; frequent flooding.	Moderate: Moderately slow permeability; frequent flooding.
Bruno (Bu, BV) (For interpretations for Vicksburg soils in mapping unit BV, refer to the Vicksburg series.)	Fair	Good	Severe: Very frequent flooding.	Severe: Very frequent flooding; excessive seepage.
Collins (Co)	Good	Fair	Severe: Frequent flooding; moderately high water table.	Moderate: Fair berm material; frequent flooding; moderate permeability.
Commerce (Cr, Cs)	Good	Fair to good	Severe: Moderately high water table; frequent or very frequent flooding.	Moderate: Moderate permeability; frequent or very frequent flooding.
Convent (Cv, CA, CB) (For interpretations for Adler soils in mapping unit CA, refer to the Adler series; for interpretations for Bruin soils in mapping unit CB, refer to the Bruin series.)	Good	Fair	Severe: Very frequent flooding; high water table.	Moderate: Fair berm material; moderate permeability; very frequent flooding.
Crevasse (Cw, Cx) (For interpretations for Bruno soils in mapping unit Cx, refer to the Bruno series.)	Poor	Good	Severe; Very frequent flooding; excessive seepage.	Severe: Rapid permeability; very frequent flooding.
Falaya (Fa, FF)	Good	Fair	Severe: Frequent or very frequent flooding; high water table.	Moderate: Frequent or very frequent flooding; moderate permeability.
Gullied land (Gu, GxF) (For interpretations for Natchez soils in mapping unit GxF, refer to the Natchez series.)	Poor	Poor	Severe: Steep slopes	Severe: Fair berm material; steep slopes.
Lucy (LME) (For interpretations for Memphis soil in mapping unit LME, refer to Memphis series (17 to 60 percent slopes.)	Poor	Good	Slight	Severe: Excessive seepage; steep slopes.
Memphis (0 to 17 percent slopes) (MeA, MeB2, MeC2, MeD, MeD2).	Good	Fair	Slight	Moderate or severe: Slopes; moderate permeability. Moderate for slopes of less than 7 percent; severe for slopes of more than 7 percent.
Memphis (17 to 60 percent slopes) (MeF2, MeF3, MGE, MnF, MSE). (For interpretations for Gullied land in mapping unit MGE, refer to Gullied land; for interpretations for Natchez soil in mapping unit MnF, refer to the Natchez series; for interpretations for Susquehanna soils in mapping unit MSE, refer to the Susquehanna series.)	Good	Fair	Severe: Steep slopes	Severe: Steep slopes; moderate permeability.

interpretations of soils

Soil features adversely affecting—					
Location of highways	Farm ponds		Agricultural drainage	Sprinkler irrigation	Terraces and diversions
	Reservoir area	Embankments			
Moderately high water table; poor traffic-supporting capacity; frequent flooding.	Seepage; frequent flooding.	Seepage; low strength and stability.	Moderately high water table; frequent flooding.	Slow intake rate	Not needed.
Poor traffic-supporting capacity; high water table; high shrink-swell potential; very frequent flooding.	No undesirable features.	High shrink-swell potential; low strength and stability.	Slow permeability; high water table; very frequent flooding.	Slow permeability; slow intake rate; high water table.	Not needed.
Moderately high water table; frequent flooding.	Moderate permeability.	No undesirable features.	Frequent flooding	No undesirable features.	Not needed.
Moderately high water table; frequent flooding.	Moderately slow permeability.	No undesirable features.	Frequent flooding	No undesirable features.	Not needed.
Very frequent flooding	Rapid permeability.	Rapid permeability.	Very frequent flooding.	Low available water capacity.	Not needed.
Frequent flooding; poor traffic-supporting capacity	Seepage in some places; frequent flooding.	Low strength and stability; moderate permeability.	Frequent flooding	Slow intake rate	Not needed.
Moderately high water table; frequent or very frequent flooding.	Frequent or very frequent flooding.	No undesirable features.	Frequent or very frequent flooding.	No undesirable features.	Not needed.
High water table; poor traffic-supporting capacity; very frequent flooding.	Very frequent flooding.	Low strength and stability; moderate permeability.	High water table; very frequent flooding.	Slow intake rate	Not needed.
Very frequent flooding	Rapid permeability.	Piping; low strength and stability.	Not needed	Low available water capacity.	Not needed.
High water table; poor traffic-supporting capacity; frequent flooding.	Frequent or very frequent flooding.	Low strength and stability; moderate permeability.	High water table; frequent or very frequent flooding.	Slow intake rate	Not needed.
Steep slopes; poor traffic-supporting capacity; severe hazard of erosion.	Seepage	Low strength and stability; severe hazard of erosion.	Not needed	Slow intake rate; steep slopes.	Severe hazard of erosion; steep slopes.
Steep slopes	Seepage; rapid permeability.	Seepage	Not needed	Rapid permeability; low available water capacity.	Steep slopes.
Fair traffic-supporting capacity.	Seepage in some places.	Low strength and stability; severe hazard of erosion.	Not needed	Slow intake rate	Severe hazard of erosion.
Fair traffic-supporting capacity; severe hazard of erosion.	Seepage in some places.	Low strength and stability; severe hazard of erosion.	Not needed	Steep slopes	Steep slopes.

TABLE 4.—*Engineering*

Soil series and map symbols	Suitability as source of—		Degree and kinds of limitations for—	
	Topsoil	Road fill	Septic tank filter fields	Sewage lagoons
Morganfield (Mo)	Good	Fair	Moderate: Infrequent flooding; moderately high water table.	Moderate: Fair berm material; moderate permeability; infrequent flooding.
Natchez	Fair	Fair	Severe: Steep slopes	Severe: Fair berm material; moderate permeability; steep slopes.
Newellton (Ne)	Poor	Poor	Severe: High water table; very frequent flooding.	Severe: Moderate permeability in lower subsoil; very frequent flooding.
Robinsonville (Ro)	Good	Fair	Severe: Very frequent flooding.	Severe: Moderately rapid permeability; very frequent flooding.
Sharkey (Sh, ST) (For interpretations of Tunica soils in mapping unit ST, refer to the Tunica series.)	Poor	Poor	Severe: Slow percolation; high water table; very frequent flooding.	Moderate: High shrink-swell potential; low strength and stability; very frequent flooding.
Susquehanna	Poor	Poor	Severe: Steep slopes; slow permeability; high water table.	Severe: Steep slopes
Tippo (TaA)	Fair	Fair	Severe: Slow percolation; high water table.	Moderate: Fair berm material.
Tunica (Tc, Tp, TN) (For interpretations for Newellton soils in mapping unit TN, refer to the Newellton series.)	Poor	Poor	Severe: Slow percolation; high water table; very frequent flooding.	Moderate: High shrink-swell potential; low strength and stability; very frequent flooding.
Vicksburg (Vc)	Good	Fair	Severe: Frequent flooding	Moderate: Moderate permeability; frequent flooding.
Waverly (Wa)	Fair	Fair	Severe: Very frequent flooding; slow percolation; high water table.	Moderate: Very frequent flooding.

The column headed "Depth from surface" indicates the depth and thickness of the layers for which estimates were made. The layers reported in table 3 are fewer and generally thicker than those in the detailed profiles described in the section "Descriptions of Soils." Listed for the layers in table 3 are the AASHO and Unified engineering classifications, the USDA textural classification, and the estimated percentages of material that pass Nos. 4, 10, and 200 sieves. The amount of material passing a No. 200 sieve determines whether soil material is coarse grained or fine grained.

Permeability is the rate of water percolation in the soil, expressed in inches per hour. Permeability depends mainly on texture and structure, but it may also be affected by other physical properties. The permeability of each soil layer is important in planning the drainage of a farm. Layers of soil that impede drainage or are very permeable can greatly affect the suitability of soil material for foundations.

In table 3 available water capacity is given in inches per inch of soil depth. It is the approximate amount of capillary water in the soil when it is wet to field capacity, or the difference between the amount of water at field capacity and the amount at the permanent wilting point of plants. When the soil is air dry, this amount of water will wet the soil material to a depth of 1 inch without deeper penetration.

Shrink-swell potential indicates the volume change of

interpretations of soils—Continued

Soil features adversely affecting—					
Location of highways	Farm ponds		Agricultural drainage	Sprinkler irrigation	Terraces and diversions
	Reservoir area	Embankments			
Poor traffic-supporting capacity; infrequent flooding.	Seepage; infrequent flooding.	Low strength and stability; infrequent flooding.	Not needed	Slow intake rate	Not needed.
Steep slopes; fair to poor traffic-supporting capacity; severe hazard of erosion.	Seepage	Low strength and stability; moderate permeability; severe hazard of erosion.	Not needed	Steep slopes	Steep slopes.
Poor traffic-supporting capacity; high water table; high shrink-swell potential.	None	High shrink-swell potential; low strength and stability.	Slow permeability; high water table.	Slow permeability; slow intake rate; high water table.	Not needed.
Very frequent flooding	Moderately rapid permeability.	High stability	Not needed	High available water capacity.	Not needed.
High shrink-swell potential; poor traffic-supporting capacity; high water table; very frequent flooding.	Very frequent flooding.	High shrink-swell potential; low strength and stability.	Slow permeability; high water table; very frequent flooding.	Slow permeability; slow intake rate; very frequent flooding.	Not needed.
High shrink-swell potential; low strength and stability; steep slopes; severe hazard of erosion.	No undesirable features.	High shrink-swell potential; severe hazard of erosion.	Not needed	Steep slopes; slow intake rate; slow permeability; shallow root zone; severe hazard of erosion.	Steep slopes; difficult to work; slow permeability; severe hazard of erosion.
High water table; poor traffic-supporting capacity.	No undesirable features.	Low strength and stability; subject to piping and erosion.	Slow intake rate; moderately slow permeability; high water table.	Slow intake rate; moderately slow permeability.	Not needed.
High shrink-swell potential; poor traffic-supporting capacity; high water table; very frequent flooding.	No undesirable features.	High shrink-swell potential; low strength and stability.	Slow permeability; high water table; very frequent flooding; no outlets in depressed areas.	Slow permeability; slow intake rate.	Not needed.
Good traffic-supporting capacity; frequent flooding.	Excessive seepage; frequent flooding.	Low strength and stability; moderate permeability.	Frequent flooding	Slow intake rate	Not needed.
High water table; poor traffic-supporting capacity; very frequent flooding.	Very frequent flooding.	Low strength and stability; subject to piping and erosion.	High water table; very frequent flooding.	Slow intake rate	Not needed.

soil material that results from a change in content of moisture. It is estimated primarily on the basis of the amount and kind of clay in the soil layers and is rated *low*, *moderate*, or *high* in table 3.

The acid or alkaline reaction of the soil is expressed in pH and, in table 3, the value given is for the entire soil profile. A pH of 7.0 is neutral; values lower than 7.0 are acid, and values higher are alkaline. Knowledge of reaction is useful if pipelines are to be constructed as reaction indicates likelihood of corrosion.

Engineering interpretations of soils

In table 4 the soils are rated according to suitability as sources of topsoil and road fill and according to the degree of their limitations when used as septic tank filter fields and sewage lagoons. Table 4 also names the soil features that adversely affect the location of highways and the construction and maintenance of farm ponds, drainage systems, sprinkler irrigation systems, and terraces and diversions. These interpretations are based on experience with the same kinds of soils in other counties and on information in other parts of this soil survey.

A rating of *good*, *fair*, or *poor* is given to show suitability of soil material as a source of topsoil and road fill. Topsoil is soil material used to topdress slopes, roadbanks, and other places where vegetation is to be established and maintained. Road fill is soil material used for building up

TABLE 5.—

[Tests performed by Mississippi State Highway Department, in accordance with standard

Soil name and location	Parent material	Bureau of Public Roads report No.	Depth	Plasticity index
			Inches	
Adler silt loam: Sec. 11, T. 6 N., R. 3 W	Alluvium	518936	31–45	[2] NP
Convent silt loam: Sec. 7, T. 4 N., R. 5 W	Alluvium	518937	33–60	NP

[1] According to AASHO Designation: T 88–57 (*1*). Results by this procedure may differ somewhat from results obtained by the soil survey procedure of the Soil Conservation Service (SCS). In the AASHO procedure, the fine material is analyzed by the hydrometer method, and the various grain-size fractions are calculated on the basis of all the material, including that coarser than 2 millimeters in diameter. In the SCS soil survey procedure, the fine material is analyzed by the pipette method and the material coarser than 2 millimeters in diameter

road grades. It is the material that supports the base layers.

In table 4 the soils are rated *slight*, *moderate*, or *severe*, according to the degree of their limitations for use as septic tank filter fields and sewage lagoons. If the rating is moderate or severe, the main limitation or limitations are also given.

The selection of highway locations is affected by susceptibility to flooding, a seasonal high water table, traffic-supporting capacity of the soil, shrink-swell potential, and other factors that affect construction.

Soil features affecting reservoir areas of farm ponds are permeability, seepage, and flooding.

Some of the important features that affect the suitability of soil material for embankments are strength and stability, seepage, permeability, shrink-swell potential, and susceptibility to flooding and to erosion.

Soil features affecting agricultural drainage are a seasonal high water table, permeability, susceptibility to flooding, and availability of outlets.

Some of the features considered in evaluating a soil for irrigation purposes are rate of water intake, permeability, available water capacity, slope, and the level of the water table.

Slope, the hazard of erosion, and permeability are considered when determining the suitability of a soil for terraces and diversions.

Soil test data

Samples of Adler silt loam and Convent silt loam were tested in accordance with procedures of the American Association of State Highway Officials (AASHO). The results of these tests and the classification of each sample according to both the AASHO and Unified systems are given in table 5.

The engineering soil classifications in table 5 are based on data obtained by mechanical analyses and by tests to determine liquid limit and plastic limit. The mechanical analyses were made by the combined sieve and hydrometer methods. The percentage of clay obtained by the hydrometer method should not be used in naming the textural classes of soils.

The plasticity index indicates the range of moisture content within which a soil material is plastic. It is the numerical difference between the liquid limit and the plastic limit. The test for plastic limit measures the effect of water on the consistence of the soil material. As the moisture content of a clayey soil increases from a very dry state, the material changes from a semisolid to a plastic state. As the moisture content is further increased, the material changes from a plastic to a liquid state. The plastic limit is the moisture content at which the soil material passes from a semisolid to a plastic state. The liquid limit is the moisture content at which the material passes from a plastic to a liquid state. Both of the samples reported in table 5 are nonplastic.

Moisture density, the relation of moisture content and the density to which a soil material is compacted, is also given in table 5. If a soil material is compacted at successively higher moisture content, assuming that the compactive effort remains constant, the density of the compacted material increases until the optimum moisture content is reached. After that the density decreases with increase in moisture. The highest dry density obtained in the compaction tests is termed maximum dry density. Moisture-density data are important in earthwork, for as a rule, optimum stability is obtained if the soil is compacted to about the maximum dry density when it is at approximately the optimum moisture content.

Use of Soils for Wildlife and Fish[6]

In this section, the wildlife resources and the kinds and requirements of wildlife and fish in the county are discussed. The relation of wildlife, soils, and plants is brought out by describing three wildlife areas.

The type of vegetation and the use of the soils determine the kinds and numbers of wildlife that live in an area. Some kinds of wildlife are adapted to woodland, some to marshland, and some to open farmland, but a combination of these is needed for most species. The kinds of soil in

[6] EDWARD G. SULLIVAN, biologist, Soil Conservation Service, assisted in preparing this section.

Soil test data

procedures of the American Association of State Highway Officials (AASHO) (*1*)]

Mechanical analysis [1]						Colloids	Mica	Moisture density		Classification	
Percentage passing sieve—		Percentage smaller than—						Maximum dry density	Optimum moisture	AASHO	Unified
No. 60 (0.25 mm.)	No. 200 (0.074 mm.)	0.05 mm.	0.02 mm.	0.005 mm.	0.002 mm.						
						Percent		*Lbs. per cu. ft.*	*Percent*		
100	100	82	37	8	6	6	0	100. 6	17. 6	A-4(8)	ML
100	99	80	59	10	7	6	1	100. 3	18. 4	A-4(8)	ML

is excluded from calculations of grain-size fractions. The mechanical analyses data used in this table are not suitable for use in naming textural classes for soil.

[2] Nonplastic.

an area affect the vegetation that grows, and the vegetation has much to do in determining the wildlife. Also, the soils and the plants growing on them have much to do in determining the quality and quantity of water in a pond or stream, and in the productivity of fish. All of the soils in Adams County are suited to and support one or more kinds of wildlife. The local representative of the Soil Conservation Service may be consulted for help in planning and establishing food supply and habitat suitable for a particular farm or area, and for the kinds of wildlife or fish a landowner wishes to favor.

Changing patterns of land use have affected the kinds and numbers of wildlife in this county. In the early days of settlement, timber practically covered the county, and deer, squirrels, turkeys, and other woodland wildlife were abundant. As the land was cleared for farming, these animals decreased in number because their habitat was destroyed. They were replaced by bobwhites, doves, rabbits, and many kinds of songbirds that were better adapted to semiopen areas. These animals and birds flourished because the farming practiced created a habitat suitable for them.

In Adams County, much of the land is too steep for cultivation so the change in habitat from forest to farm game animals was not as great as in other parts of the State.

Trends in land use have continued to change the kinds and numbers of wildlife in this county. Because of reforestation and good practices of timber management, many forest game species are coming back. Because livestock raising has increased the acreage used for pasture, game birds and animals that normally live on farmland have decreased in number. Generally, pasture land is a poor habitat for these species. Modern practices of farming have destroyed much of the natural vegetation that produced the food and cover used by wildlife, and it has been necessary to plant suitable vegetation and to use management practices to maintain some of the natural food plants. Future use of the soils and game management practices will determine the kinds and numbers of wildlife in the county.

Requirements of game and fish

Bobwhite quail.—These birds need open and semiopen areas in which food is available near vegetation that provides protection from predators and adverse weather. Areas of row-crop farming generally provide a habitat of this kind. The choice foods for quail are acorns, beechnuts, blackberries, browntop and Texas millets, black cherries, corn, cowpeas, flowering dogwood, bicolor, Kobe, Korean, and common lespedezas, mulberries, pine seed, partridge peas, ragweed, sweetgum, and tickclover (beggartick). In warm seasons quail eat insects.

Deer.—Deer require wooded areas of 500 acres or more and a good supply of water. They eat a variety of plants, including many native plants. Choice foods are acorns, clover, corn, cowpeas, greenbrier, honeysuckle, oats, fescue, and wheat.

Doves.—Doves need water daily and open fields without thick ground cover. Choice foods are browntop millet, corn, croton, grain sorghum, panicgrass (several species), pine seed, pokeberries, ragweed, sweetgum, and wheat.

Ducks.—Ducks feed in areas of permanent water or areas that are flooded in winter. Some choice foods are acorns, beechnuts, corn, browntop and Japanese millets, and smartweed.

Rabbits.—Adequate cover for rabbits is furnished by blackberries, multiflora rose, sericea lespedeza, and any low-growing brush, shrubs, or annual weeds. Grasses, clovers, waste grain, and bark are the main foods.

Squirrels.—Squirrels need wooded areas that range from a few acres to larger tracts. The stand must contain hardwoods. Choice foods are acorns, beechnuts, blackgum seed, black cherries, corn, dogwood, hickory nuts, mulberries, pecans, and maple and pine seeds.

Nongame birds.—Many kinds of nongame birds live in Adams County. Their food varies. Some of these birds eat nothing but insects, a few eat insects and fruits, and others eat insects, acorns, nuts, and fruits.

Fish.—The principal game fish in ponds and streams are bass, bluegills and other sunfish, and channel catfish. Bluegills and most of the sunfish eat aquatic worms and insects and their larvae. Bass and channel catfish feed on

small fish, frogs, crayfish, and other aquatic animals. In ponds the amount of food for fish and the poundage of usable fish produced are related to the fertility of the water and of the watershed and the bottom of the ponds. Most ponds need additions of fertilizer and lime if they are to produce a large amount of fish.

Wildlife suitability groups

The soils in Adams County have been grouped in three wildlife suitability groups, each containing two or more soil associations. The soils in each group are similar in their ability to produce plants suitable for supporting about the same kind of wildlife and of maintaining water at a quantity and quality high enough to support fish. The soil associations are shown on the colored map at the back of this survey and are described in the section "General Soil Map." To determine the soils in each wildlife group, refer to the "Guide to Mapping Units" at the back of this survey. The three wildlife suitability groups are described in the following pages.

WILDLIFE SUITABILITY GROUP I

This wildlife suitability group is made up of the soils in the Memphis, the Gullied land-Natchez-Memphis, and the Memphis-Lucy soil associations. These associations cover about 65 percent of the county. Topography ranges from the gently sloping to nearly level ridges and terraces in the Memphis association to hilly upland in the Gullied land-Natchez-Memphis association, where slopes are as much as 60 percent. Most of the open land is in the Memphis association and on the narrow ridges and valleys in other areas.

Much of the area is too steep for cultivation and is in timber. Practically all of the timber consists of stands of mixed pines and hardwoods or pure stands of hardwoods, but there are small stands of young pine that have seeded naturally or have been planted. Some areas on the narrow ridges and in valleys have been cleared and are used mainly for pasture, hay, cotton, and corn.

In this wildlife group doves, bobwhite quail, and rabbits are limited to open land and nearby areas. Many kinds of cover plants and briers, brush, and weeds grow naturally around the edge of fields and provide food and cover. Lespedeza, wild beans, tickclover, and other native legumes are abundant in areas where shade and competition from other plants do not interfere with their growth. Acorns from several kinds of oaks add to the food for quail. Lespedeza, soybeans, cowpeas, millet, legumes, and similar plants grow well on the soils in this wildlife group. They can be planted to provide food for wildlife, or the wildlife can feed on the waste left after a crop is harvested.

The soil associations in this wildlife group are generally good habitat for forest game. Since many of the trees are hardwoods, deer, turkeys, and squirrels find excellent food and cover. Good woodland management helps to maintain habitat suitable for forest game. The understory provides browse plants for deer, and mature hardwoods provide mast.

Few, if any, areas in this wildlife group can be developed as habitat for ducks. Most of the soils, however, are suitable as sites for farm ponds (fig. 5). Under good management, a large quantity of fish can be produced in these ponds.

***Figure 5.*—A farm pond on a Memphis silt loam provides water for livestock and for fishing and other recreational uses.**

WILDLIFE SUITABILITY GROUP II

This wildlife group is made up of the soils in the Falaya-Collins and Convent-Adler soil associations. These soils are on the flood plains of the Mississippi River and on bottom lands along the Homochitto River and other major streams in the county. They make up about 12 percent of the county. The soils are level and nearly level and are subject to flooding, particularly in winter. The better drained areas and the areas protected from flooding are in row crops and pasture. Most of the remaining acreage is in hardwoods.

The woodland in this wildlife group consists mostly of hardwoods, which provide good habitat for forest game. Woodland management that leaves mature, mast-producing trees and that opens areas by harvest cutting insures adequate food for forest game.

Beaver ponds and low areas that are flooded in winter provide habitat for waterfowl. Some food plants grow naturally in these areas, and Japanese millet can be planted to supplement them. Many other areas suitable for waterfowl can be developed. These areas may be in woodland that is flooded in winter or in planted fields. Browntop millet and Japanese millet grow well in these areas. Water for flooding is available in nearby streams.

Practically all of the native plants suitable as food and cover grow well around open fields. Also suitable are those plants commonly seeded to supply food for quail. Unless controlled, johnsongrass and weeds compete seriously with the native legumes suitable as food for quail.

Many plants that provide cover and choice food for rabbits grow well on these soils. Pastures provide excellent habitat for rabbits if sufficient cover is allowed to grow in pastures.

In this wildlife group, the topography limits the sites available for farm ponds. Most of the ponds that are constructed must be of the dug-out or levee type. During overflows wild fish may enter these ponds.

WILDLIFE SUITABILITY GROUP III

This group is made up of soils in the Robinsonville-Crevasse, the Bruin-Convent-Robinsonville, and the Sharkey-Tunica-Newellton soil associations. These associations are on the flood plains of the Mississippi River. They make up about 23 percent of the county and consist mainly of low ridges and shallow depressions. A large part of the Robinsonville-Crevasse and the Bruin-Convent-Robinsonville soil associations are in hardwoods, but small areas are in crops and pasture. Most areas in the Sharkey-Tunica-Newellton soil association are subject to flooding and are in hardwoods.

The soils in this wildlife group contain some of the best habitat for forest game in the county. A large part of the acreage is woodland, and the trees are mostly hardwoods. Late in winter deer and turkeys cannot use some areas, because they are covered by water. If management is good, this wildlife group will continue to provide good habitat for forest game.

In this wildlife group, areas that can be developed for waterfowl are scarce, but a number of natural sloughs and wet areas provide habitat for ducks. Some of the soils are underlain by sand and gravel and do not hold water well; before a pond or lake is constructed a thorough investigation of the soils should be made. Among the plants that can be seeded to supply food for ducks are browntop millet in the better drained areas and Japanese millet in the poorly drained areas and along the edges of lakes.

Game birds and animals that are generally found on farms are limited to areas in or around fields and pastures. Some native plants that provide food for quail are not adapted to the soils in this wildlife group, and where these plants grow, competition from grasses and weeds is likely. Food and cover plants grow naturally around the edges of fields and provide a good habitat for both cottontail and swamp rabbits. Plants that commonly supply food for doves can be grown on the soils in this wildlife group if the johnsongrass is controlled.

This wildlife group is generally not suitable for building ponds for game fish, mainly because flooding is a hazard and the floodwaters bring in wild fish. Before a pond is constructed, an investigation should be made to determine the water-holding capacity of the soils. Also, levees should be high enough to prevent water from entering when the streams overflow.

Formation and Classification of Soils

This section has three main parts. In the first the five major factors of soil formation are discussed in terms of their effect on the development of the soils in Adams County. Processes that cause differentiation of soil horizons are described in the second part. In the third part, the current system of soil classification is discussed, and the soils are placed in classes of that system and also in great soil groups of an older system.

Factors of Soil Formation

Soil is produced by the interaction of five major factors of soil formation (*3*). These factors are parent material, climate, living organisms (especially vegetation), relief, and time. The kind of soil formed in one area differs from the kind formed in another area if there has been a difference between the two areas in climate, vegetation, or any other factor.

Parent material

Parent material, the unconsolidated mass from which soil forms, has much to do with the chemical and mineralogical composition of the soil. The parent material of the soils in Adams County is alluvium, loess, or marine deposits.

Soils formed in alluvium make up about 34 percent of the county. The soils that formed on the alluvial plain of the Mississippi River differ widely because the river transported sediments containing many kinds of minerals. These sediments range from coarse sand to clay. Crevasse sand, for example, formed in recently deposited coarse-textured alluvium. The alluvium deposited by the tributaries of the Mississippi River is fairly uniform in texture and is dominantly silt loam. Morganfield soils formed in this kind of material.

Most of the alluvium was deposited by rivers or smaller streams when the waters were in flood or quiet. When a river or smaller stream overflows, water moves rapidly and carries the coarse soil particles such as sand only a short distance before depositing them to form low ridges and natural levees near the streams. The soils that formed on these ridges and levees are brownish, permeable, and moderately well drained or well drained. As the water spreads over the flood plains and its speed decreases, the medium-size soil particles are deposited. These particles are dominantly silts generally mixed with fine sand and clay, and from them moderately permeable, somewhat poorly drained soils formed. Finally, clays are deposited when the flood has receded and water is left standing in the low areas. The soils that formed in these clays are very slowly permeable and poorly drained.

The soils formed in a mantle of loess cover about 61 percent of the county. This mantle is thick and calcareous where it borders the flood plains of the Mississippi River; it is thinner and more acid in the eastern part of the county. Where loess is unweathered, it is uniform in physical and chemical composition and is silty, though soil particles are irregular in shape. Also, unweathered loess is noncoherent, absorbs water well, and resists weathering.

Most soil scientists believe that the loess in Adams County was first deposited on the flood plains and later redeposited by wind on the older formations of the Coastal Plain. These deposits varied in depth. Although the deposits originally formed a comparatively level plain, this plain has been highly dissected and is nearly level to steep. The soils that formed on it are dominantly acid.

The soils formed in marine deposits occupy about 5 percent of the county. These deposits consist primarily of sands and clays laid down by the sea. The coarser particles, or sandy material, were deposited by shallow, moving water near the shoreline. The soils that formed in sandy material are permeable and well drained. Clays were deposited by quieter and much deeper water. Soils formed in this material are slowly permeable, very strongly acid, and very steep.

Climate

The humid, warm-temperate climate of Adams County is characteristic of the southeastern part of the United States. This type of climate, like any other, is a genetic factor that affects the physical, chemical, and biological relationships in soils, primarily through precipitation and temperature.

Water dissolves minerals, supports biological activity, and transports minerals and organic residues in the soil profile. The amount of water that percolates through the soil depends mainly on rainfall, relative humidity, and the length of the frost-free period. Downward percolation is also affected by physiographic position and by soil permeability.

Temperature and precipitation influence the kinds and growth of organisms in and on a soil. They also affect the speed of physical and chemical reactions. In Adams County these reactions are influenced by the warm, moist weather that prevails most of the year. Because precipitation is plentiful in the county, the soils are subject to leaching. Freezing and thawing have had little effect on weathering and the soil-forming processes.

Living organisms

Plants, animals, insects, bacteria, and fungi affect the formation of soils. Among the changes caused by these living organisms are gains in organic matter and nitrogen in the soil, gains or losses in other plant nutrients, and changes in structure and porosity. The kinds and numbers of plants and animals that live on and in the soil are determined by the climate but partly by the parent material.

Vegetation, dominantly hardwood trees, has affected soil formation in Adams County more than other living organisms. Mainly because of this forest cover and the warm climate, many soils in the county are brownish colored and have a low to medium content of organic matter.

Earthworms and other small invertebrates are most active in the surface layer, where they slowly but continuously mix the soil. Rodents and other vertebrates are also active. Not much is known about fungi and other micro-organisms in the soils of Adams County, but it is known that these micro-organisms aid in weathering, decomposing organic matter, and fixing nitrogen in the soils.

Relief

Relief affects soil formation through its influence on soil drainage, erosion, plant cover, and soil temperature. The relief in Adams County ranges from nearly level in the flood plains to very steep in the uplands. In only a few places in the flood plains are differences in elevation more than 15 feet within a square mile, but local differences of 40 to 60 feet are common in areas of steep hills.

The flatness of flood plains has much to do with the slow drainage of many of the soils. Water moves into the main channels with difficulty, especially from the slack water areas of clay. It also moves slowly through the clayey soils and increases the problem of drainage. Erosion is very slight in the nearly level areas of flood plains.

The steep slopes in the uplands cause rapid runoff from many soils. Water moves rapidly from the steep slopes into the main channels and carries with it much of the soil material. Because of this rapid runoff, erosion is severe and gullies form.

Because much more vegetation grows on nearly level soils than on steep soils, nearly level soils are supplied with more organic matter. Organic matter helps to increase the infiltration, permeability, and water-holding capacity of the soils.

Time

Time, generally much of it, is required for the formation of soils that have distinct horizons. The length of time that the parent material has been in place is commonly reflected in the degree that the soil profile has developed.

The soils of Adams County range from young to old. The young soils have developed very little, and the older soils have well-defined horizons. Most of the soils on the flood plains are young and are still receiving deposits occasionally. In these soils horizon differentiation is slight. Except for the darkening of the surface layer, these soils have retained most of the characteristics of their parent material. The silty soils on uplands are generally much older than soils on flood plains. These silty soils have a distinct, acid, strong-brown silty clay loam subsoil that bears little resemblance to the original parent material. Through time, however, soil profiles, especially those in soils on steep slopes, may be altered by geologic erosion.

Processes of Soil Horizon Differentiation

Several processes were involved in the formation of soil horizons in the soils of Adams County. These processes are (1) the accumulation of organic matter, (2) the leaching of calcium carbonates and bases, (3) the reduction and transfer of iron, and (4) the formation and translocation of silicate clay minerals. In most soils more than one of these processes have been active in the development of horizons.

The accumulation of organic matter in the upper part of the profile is important because this accumulation results in the formation of an A1 horizon. The soils of this county range from medium to very low in content of organic matter.

Carbonates and bases have been leached from nearly all of the soils in this county. This leaching has contributed to the development of horizons. Soil scientists generally agree that leaching of bases from the upper horizons of a soil generally precedes the translocation of silicate clay minerals. Most of the soils in this county are moderately to strongly leached.

The reduction and transfer of iron, a process called gleying, is evident in the poorly drained soils of the county. This gleying is indicated by the grayish color of horizons below the surface layer. Segregation of iron is indicated in some horizons by reddish-brown mottles and concretions.

In some soils of Adams County, the translocation of clay minerals has contributed to horizon development. The eluviated A2 horizon, above the B horizon, is lower in content of clay than the B horizon and generally is lighter in color. The B horizon commonly has accumulations of clay (clay films) in pores and on ped surfaces. Soils of this kind were probably leached of carbonates and soluble salts to a considerable extent before translocation of silicate clays took place.

The leaching of bases and the subsequent translocation of silicate clay are among the more important processes of

horizon differentiation that have taken place in the soils of Adams County. In the Memphis and other soils translocated silicate clays have accumulated in the B horizon in the form of clay films.

Classification of Soils

Soils are classified so that we may more easily remember their significant characteristics. Classification enables us to assemble knowledge about the soils, to see their relationships to one another and to the whole environment, and to develop principles that help us in understanding their behavior and their response to manipulation. First through classification and then through use of soil maps, we can apply our knowledge of soils to specific fields and other tracts of land.

Thus in classification, soils are placed in narrow categories that are used in detailed soil surveys so that knowledge about the soils can be organized and used in managing farms, fields, and woodland; in developing rural areas; in engineering work; and in many other ways. Soils are placed in broad classes to facilitate study and comparison in large tracts, such as countries and continents.

Two systems of classifying soils have been used in the United States in recent years. The older system was adopted in 1938 (*2*) and later revised (*8*). The system currently used was adopted for general use by the National Cooperative Soil Survey in 1965. Because this system is under continual study, readers interested in latest developments of this system should search the latest literature (*5*, *11*). In table 6, the soil series of Adams County are placed in some categories of the current system and in the great soil groups of the older system.

The current system of classification has six categories. Beginning with the broadest, these categories are order, suborder, great group, subgroup, family, and series. In this system the criteria used as a basis for classification are soil properties that are observable and measurable. These properties are chosen, however, so that the soils of similar genesis, or mode of origin, are grouped together. Most of the classes of the current system are briefly defined in the following paragraphs.

ORDER: Ten soil orders are recognized in the current system. They are Entisols, Vertisols, Inceptisols, Aridisols, Mollisols, Spodosols, Alfisols, Ultisols, Oxisols, and Histosols. The properties used to differentiate the soil orders are those that tend to give broad climatic groupings of soils. Two exceptions are the Entisols and Histosols, which occur in many different climates. Five of the soil orders are represented in Adams County. They are Entisols, Inceptisols, Mollisols, Alfisols, and Ultisols.

Entisols are recent mineral soils that do not have genetic diagnostic horizons or have only the beginnings of such horizons. Inceptisols are mineral soils in which genetic horizons have started to develop. They generally form on young, but not recent, land surfaces. Mollisols are mineral soils that have a thick dark-colored surface layer that has high base saturation. Alfisols are soils containing clay-enriched B horizons that have high base saturation. Ultisols have a clay-enriched B horizon that has less than 35 percent base saturation, which decreases with increasing depth.

TABLE 6.—*Soil series classified according to the current systems of classification* [1] *and the 1938 system with its later revision*

Series	Current classification			1938 classification
	Family	Subgroup	Order	Great soil group
Adler	Coarse-silty, mixed, nonacid, thermic	Aquic Udifluvents	Entisols	Alluvial soils.
Bowdre	Clayey over loamy, mixed, thermic	Aquic Fluventic Hapludolls	Mollisols	Alluvial soils.
Bruin	Coarse-silty, mixed, thermic	Aquic Fluventic Eutrochrepts	Inceptisols	Alluvial soils.
Bruno	Sandy, mixed, thermic	Typic Udifluvents	Entisols	Regosols.
Collins	Coarse-silty, mixed, acid, thermic	Aquic Udifluvents	Entisols	Alluvial soils.
Commerce	Fine-silty, mixed, nonacid, thermic	Aeric Fluventic Haplaquepts	Inceptisols	Alluvial soils.
Convent	Coarse-silty, mixed, nonacid, thermic	Aeric Haplaquepts	Inceptisols	Alluvial soils.
Crevasse	Mixed, thermic	Typic Udipsamments	Entisols	Regosols.
Falaya	Coarse-silty, mixed, acid, thermic	Aeric Fluventic Haplaquepts	Inceptisols	Alluvial soils.
Lucy	Loamy, siliceous, thermic	Arenic Paleudults	Ultisols	Red-Yellow Podzolic soils.
Memphis	Fine-silty, mixed, thermic	Typic Hapludalfs	Alfisols	Gray-Brown Podzolic soils.
Morganfield	Coarse-silty, mixed, nonacid, thermic	Typic Udifluvents	Entisols	Alluvial soils.
Natchez	Coarse-silty, mixed, thermic	Typic Eutrochrepts	Inceptisols	Gray-Brown Podzolic soils.
Newellton	Clayey over loamy, mixed, nonacid, thermic.	Aeric Fluventic Haplaquepts	Inceptisols	Alluvial soils.
Robinsonville	Coarse-loamy, mixed, nonacid, thermic.	Typic Udifluvents	Entisols	Alluvial soils.
Sharkey	Very fine, montmorillonitic, nonacid, thermic.	Vertic Haplaquepts	Inceptisols	Low-Humic Gley soils.
Susquehanna	Fine, montmorillonitic, thermic	Vertic Paleudalfs	Alfisols	Red-Yellow Podzolic soils.
Tippo	Coarse-silty, mixed, thermic	Aquic Fragiudalfs	Alfisols	Planosols.
Tunica	Fine over loamy, mixed, nonacid, thermic.	Vertic Haplaquepts	Inceptisols	Alluvial soils.
Vicksburg	Coarse-silty, mixed, acid, thermic	Typic Udifluvents	Entisols	Alluvial soils.
Waverly	Coarse-silty, mixed, acid, thermic	Fluventic Haplaquepts	Inceptisols	Alluvial soils.

[1] Placement of some series in the current system of classification, particularly in families and subgroups, may change as more precise information becomes available.

320-512—70——4

SUBORDER: Each order is divided into suborders, primarily on the basis of those soil characteristics that produce classes having the greatest genetic similarity. The suborders narrow the broad climatic range permitted in the orders. The soil properties used to separate suborders are mainly those that reflect either the presence or absence of waterlogging or soil differences resulting from the climate or vegetation.

GREAT GROUP: Suborders are separated into great groups according to the presence or absence of genetic horizons and the arrangement of these horizons. The horizons used to make separations are those in which clay, iron, or humus has accumulated or those that have pans that interfere with the growth of roots or the movement of water. The features used are the self-mulching properties of clays, soil temperature, major differences in chemical composition (mainly calcium, magnesium, sodium, and potassium), and the like. The great group is not shown separately in table 6, because it is the last word in the name of the subgroup.

SUBGROUP: Great groups are subdivided into subgroups, one representing the central, or typic, segment of a group, and others, called intergrades, that have properties of one great group and also one or more properties of another great group, suborder, or order. Subgroups may also be made in those instances where soil properties intergrade outside of the range of any other great group, suborder, or order.

FAMILY: Families are separated within a subgroup primarily on the basis of properties important to the growth of plants or to the behavior of soils when used for engineering. Among the properties considered are texture, mineralogy, reaction, soil temperature, permeability, thickness of horizons, and consistence. A family name consists of a series of adjectives preceding the subgroup name.

General Nature of the County

This section is primarily for those not familiar with the county. It describes the physiography, drainage, relief, climate, and agricultural trends. The figures for population and the statistics on agriculture are mainly from reports of the U.S. Bureau of the Census.

The area that is now Adams County was claimed by the French in 1716, the British in 1763, the Spanish in 1779, and the United States in 1798.

The early settlers were farmers, traders, and industrialists. They settled in the areas near the present towns of Natchez and Kingston. Washington, about 6 miles northeast of Natchez, was the seat of the Territorial and State Governments from 1802 to 1820. Natchez has been the county seat since Adams County was formed.

The early settlers depended on the Mississippi River as a means of travel and transporting freight, and the river is still important for the transportation of freight.

There were 17 manufacturing plants in Natchez in 1812, and the first cotton mill in Mississippi was built in Natchez in 1834.

The population of Adams County was 32,256 in 1950 and 37,730 in 1960. The population of Natchez was 1,811 in 1812 and 23,791 in 1960.

Physiography, Drainage, and Relief

Adams County is in the southwestern part of the State in an area called the bluff section. The landscape is undulating, rolling, and hilly and is broken by level strips of bottom land along the rivers and creeks.

Two rivers and four tributary streams drain the county. The Mississippi River flows southward along the western boundary, and the Homochitto River flows westward along the southern boundary and empties into the Mississippi River. St. Catherine, Second, Sandy, and Coles Creeks drain most of the uplands. From each of these streams many branches finger out in many directions and form a broken pattern of narrow valleys and ridges. In many places the ridgetops are 160 feet higher than the valley floors.

The relief of Adams County ranges from nearly level in the flood plains to very steep in the uplands. The highest part of the county is in the northeastern corner and is about 400 feet above sea level. The lowest part is in the Butler Lake area on the flood plains of the Mississippi River.

Climate[7]

The climate of Adams County is determined mainly by subtropical latitude, the huge land mass to the north, the proximity to the warm waters of the Gulf of Mexico, and the prevailing southerly winds. Data on temperature and precipitation for this county are given in table 7. The probabilities of the last freezing temperatures in spring and the first in fall are given in table 8.

In summer, southerly winds bring moist, tropical air, but winds from the west or north occasionally bring hot, dry weather. Droughts occur if the dry weather lasts long enough. In winter, periods of moist, tropical air and of dry, polar air alternate. These changes sometimes cause rather extreme and sudden shifts in temperature. The temperature drops below freezing every year, but generally remains this low for only a short time. Ordinarily, snow falls in January once every 4 years, but it remains on the ground for only a short time.

The relative humidity is 60 percent or higher for 73 percent of the time and is 40 percent or lower for only 8 percent of the time. In winter, when the temperature is below 50° F., the relative humidity ranges from 50 to 79 about 46 percent of the time and from 80 to 100 about 44 percent of the time. In summer, when the temperature is 90° or higher, the relative humidity is no more than 79, and it ranges from 50 to 79 for 42 percent of the time.

Moisture is ample throughout the year. Fall is the driest season, and October is the driest month. Precipitation in winter and spring often comes in the form of prolonged rains, usually because warm air from the Gulf of Mexico overrides a mass of cold air near the surface of the ground. In summer and early in fall, precipitation is in the form of thundershowers. Local droughts may occur because these showers are generally widely scattered and may bypass areas that need rain. Precipitation of at least one-tenth of an inch occurs on an average of 79 days a year; nine of these days are in April, which is the wettest

[7] By DONALD B. MUNRO, State climatologist, U.S. Weather Bureau, Jackson, Miss.

TABLE 7.—*Temperature and precipitation data*

[Data from records kept at Natchez for period 1931–60]

Month	Temperature				Precipitation				
	Average daily maximum	Average daily minimum	Two years in 10 will have at least 4 days with—		Average monthly total	One year in 10 will have—		Days with snow cover 1.0 inch or more	Average depth of snow on days with snow cover 1.0 inch
			Maximum temperature equal to or higher than—	Minimum temperature equal to or lower than—		Less than—	More than—		
	° F.	° F.	° F.	° F.	Inches	Inches	Inches	Number	Inches
January	61.7	40.2	79	22	5.52	2.7	9.5	1	5
February	64.3	43.0	79	24	4.94	2.0	8.6	(1)	2
March	70.6	47.4	82	30	6.24	3.7	9.2	0	0
April	78.1	54.9	87	41	5.08	1.9	9.4	0	0
May	84.6	62.3	92	55	5.98	2.5	12.0	0	0
June	90.9	69.3	96	61	4.03	1.1	7.5	0	0
July	92.4	71.6	98	69	4.18	1.5	7.5	0	0
August	92.7	71.0	100	66	3.86	1.6	7.4	0	0
September	88.5	66.0	97	54	2.83	.6	6.5	0	0
October	80.4	55.5	91	42	2.21	.6	4.3	0	0
November	69.2	45.1	82	28	4.46	1.4	8.4	0	0
December	62.6	41.7	76	27	5.64	3.1	9.5	(1)	4
Year	78.0	55.7	(2) 99	(3) 17	54.97	44.0	67.7	1	4

(1) Less than 0.5 day. (2) Average annual highest maximum. (3) Average annual lowest minimum.

TABLE 8.—*Probabilities of last freezing temperatures in spring and first in fall*

[All data from records kept at Natchez for period 1931–60, inclusive. Data adjusted to account for years when temperatures were not so low as those shown in table]

Probability	Dates for given probability at temperature of—				
	24° F.	28° F.	32° F.	36° F.	40° F.
Spring:					
1 year in 10 later than	February 26	March 12	April 1	April 17	April 25
2 years in 10 later than	February 19	March 5	March 25	April 10	April 18
5 years in 10 later than	February 5	February 19	March 11	March 27	April 14
Fall:					
1 year in 10 earlier than	November 29	November 15	October 29	October 17	October 11
2 years in 10 earlier than	December 5	November 21	November 4	October 23	October 17
5 years in 10 earlier than	December 16	December 2	November 15	November 3	October 28

month, and 3 of these days are in October, the driest month. Local flash floods may occur in any month when precipitation amounts to 3 inches or more in 24 hours.

Temperature is 32° or lower on an average of 30 days, and is 90° or higher on an average of 95 days in summer. Temperatures of 20° or lower occur 7 out of every 10 years. The ground freezes occasionally, but not to a great depth. Thawing is generally rapid.

Table 8 shows the probability of freezing temperatures on or after given dates in fall. The 36° and 40° temperatures are included in the table because frost can occur when the temperature of the air is several degrees above freezing. Because some crops are more tolerant of a low temperature than others, the average number of days between the last temperatures of 24°, 28°, 32°, 36°, and 40° in spring and the first in fall may be helpful. They are:

Temperature F.°	*Number of days*
24	314
28	286
32	249
36	221
40	207

Thunderstorms are frequent, but hailstones as large as three-quarters of an inch in diameter are uncommon. Tornadoes occur about once in 14 years. Gale-force winds (39 to 74 miles per hour) can be expected once in 21 years.

Agriculture

Little is known about the earliest agriculture in the county. The Indians grew some corn, melons, and beans, but after white settlers moved into the area, cotton became the principal cash crop.

Since 1937, the system of farming has steadily changed from cotton to sod crops and the raising of livestock. In recent years the acreage planted to soybeans has increased. Timber and beef cattle now are important sources of farm income.

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Glossary

Acidity, soil. See Reaction, soil.

Alluvium. Soil material, such as sand, silt, or clay, that has been deposited on land by streams.

Aggregate, soil. Many fine particles held in a single mass or cluster, such as a clod, crumb, block, or prism.

Available water capacity. The capacity of a soil to hold water in a form available to plants. The difference between the amount of water held in a soil at field capacity and the amount in the same soil at the permanent wilting point. Commonly expressed as inches of water per inch of soil.

Bedding. Plowing, grading, or otherwise elevating the surface of a level field into a series of broad beds, or "lands," so as to leave shallow surface drains between the beds.

Buried soil. A developed soil, once exposed but now overlain by more recently formed soil.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay film. A thin coating of clay on the surface of a soil aggregate. Synonyms: clay coat, clay skin.

Concretions. Grains, pellets, or nodules of various sizes, shapes, and colors consisting of concentrations of compounds, or of soil grains cemented together. The composition of some concretions is unlike that of the surrounding soil. Calcium carbonate and iron oxide are examples of material commonly found in concretions.

Consistence, soil. The feel of the soil and the ease with which a lump can be crushed by the fingers. Terms commonly used to describe consistence are—

Loose.—Noncoherent; soil does not hold together in a mass.

Friable.—When moist, soil crushes easily under gentle pressure between thumb and forefinger and can be pressed together into a lump.

Firm.—When moist, soil crushes easily under moderate pressure between thumb and forefinger, but resistance is distinctly noticeable.

Plastic.—When wet, soil is readily deformed by moderate pressure but can be pressed into a lump; forms a wire when rolled between thumb and forefinger.

Sticky.—When wet, soil adheres to other material, and tends to stretch somewhat and pull apart, rather than to pull free from other material.

Hard.—When dry, soil is moderately resistant to pressure and is difficult to break between thumb and forefinger.

Soft.—When dry, soil breaks into powder or individual grains under very slight pressure.

Cemented.—Hard and brittle soil; little affected by moistening.

Contour farming. Plowing, cultivating, planting, and harvesting in rows that are at right angles to the natural direction of the slope or that are parallel to terrace grade.

Fragipan. A loamy, brittle, subsurface horizon that is very low in organic matter and clay but is rich in silt or very fine sand. The layer is seemingly cemented when dry, has a hard or very hard consistence, and has a high bulk density in comparison with the horizon or horizons above it. When moist, the fragipan tends to rupture suddenly if pressure is applied, rather than to deform slowly. The layer is generally mottled, is slowly or very slowly permeable to water, and has few to many bleached fracture planes that form polygons. Fragipans are a few inches to several feet thick; they generally occur below the B horizon, 15 to 40 inches below the surface.

Gleyed soil. A soil in which waterlogging and lack of oxygen have caused the material in one or more horizons to be neutral gray in color. The term "gleyed" is applied to soil horizons with yellow and gray mottling caused by intermittent waterlogging.

Horizon, soil. A layer of soil, approximately parallel to the surface, that has distinct characteristics produced by soil-forming processes. These are the main horizons:

O horizon. The layer of organic matter on the surface of a mineral soil. This layer consists of decaying plant residues.

A horizon. The mineral horizon at the surface or just below an O horizon. This horizon is the one in which living organisms are most active and therefore is marked by the accumulation of humus. The horizon may have lost one or more of soluble salts, clay, and sesquioxides (iron and aluminum oxides).

B horizon. The mineral horizon below an A horizon. The B horizon is in part a layer of change from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics caused by (1) accumulation of clay, sesquioxides, humus, or some combination of these; (2) prismatic or blocky structure; (3) redder or stronger colors than the A horizon; or (4) some combination of these. Combined A and B horizons are usually called the solum, or true soil. If a soil lacks a B horizon, the A horizon alone is the solum.

C horizon. The weathered rock material immediately beneath the solum. In most soils this material is presumed to be like that from which the overlying horizons were formed. If the material is known to be different from that in the solum, a Roman numeral precedes the letter "C."

R layer. Consolidated rock beneath the soil. The rock usually underlies a C horizon but may be immediately beneath an A or B horizon.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Leaching, soil. The removal of soluble materials from soils or other material by percolating water.

Loess. A fine-grained eolian deposit consisting dominantly of silt-sized particles.

Marine deposit. Material deposited in the waters of oceans and seas and exposed by the elevation of the land or the lowering of the water level.

Mottled. Irregularly marked with spots of different colors that vary in number and size. Mottling in soils usually indicates poor aeration and lack of drainage. Descriptive terms are as follows: Abundance—*few, common,* and *many;* size—*fine, medium,* and *coarse;* and contrast—*faint, distinct,* and *prominent.* The size measurements are these: *fine,* less than 5 millimeters (about 0.2 inch) in diameter along the greatest dimension; *medium,* ranging from 5 millimeters to 15 millimeters (about 0.2 to 0.6 inch) in diameter along the greatest dimension; and *coarse,* more than 15 millimeters (about 0.6 inch) in diameter along the greatest dimension.

Parent material, soil. The horizon of weathered rock or unweathered soil material from which soil has formed; horizon C in the soil profile.

Percolation. The downward movement of water through the soil. The rate of percolation is expressed in minutes per inch of soil.

Permeability. The quality of a soil horizon that enables water or air to move through it. Terms used to describe permeability are as follows: *Very slow, slow, moderately slow, moderate, moderately rapid, rapid,* and *very rapid.*

Pore space. That fraction of the total space in a soil that is not occupied by solid particles.

Reaction, soil. The degree of acidity or alkalinity of a soil, expressed in pH values. A soil that tests pH 7.0 is precisely neutral in reaction because it is neither acid nor alkaline. An acid, or "sour," soil is one that gives an acid reaction; an alkaline soil is one that is alkaline in reaction. The degree of acidity or alkalinity of a soil expressed in pH values and in words is as follows:

	pH
Extremely acid	Below 4.5
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Medium acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Mildly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Relief. The elevations or inequalities of a land surface considered collectively.

Sand. Individual rock or mineral fragments in soils having diameters ranging from 0.05 to 2.0 millimeters. Most sand grains consist of quartz, but they may be of any mineral composition. As a textural class, soil that is 85 percent or more sand and not more than 10 percent clay.

Silt. Individual mineral particles in a soil that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). Soil of the silt textural class is 80 percent or more silt and less than 12 percent clay.

Soil. A natural, three-dimensional body on the earth's surface that supports plants and that has properties resulting from the integrated effect of climate and living matter acting upon parent material, as conditioned by relief over periods of time.

Structure, soil. The arrangement of primary soil particles into compound particles or clusters that are separated from adjoining aggregates and have properties unlike those of an equal mass of unaggregated primary soil particles. The principal forms of soil structure are *platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar,* (prisms with rounded tops), *angular blocky* (prisms with sharp corners), *subangular blocky* (prisms with mostly rounded corners), and *granular* (granules relatively nonporous). *Structureless* soils are (1) *single grain* (each grain by itself, as in dune sand) or (2) *massive* (the particles adhering without any regular cleavage, as in many claypans and hardpans).

Subsoil. Technically, the B horizon; commonly that part of the profile below plow depth.

Surface soil. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, about 5 to 8 inches in thickness. The plowed layer.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay.* The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."

Tilth, soil. The condition of the soil in relation to the growth of plants, especially soil structure. Good tilth refers to the friable state and is associated with high noncapillary porosity and stable, granular structure. A soil in poor tilth is nonfriable, hard, nonaggregated, and difficult to till.

Topsoil. A presumed fertile soil or soil material, ordinarily rich in organic matter, used to topdress roadbanks, parks, lawns, and gardens.

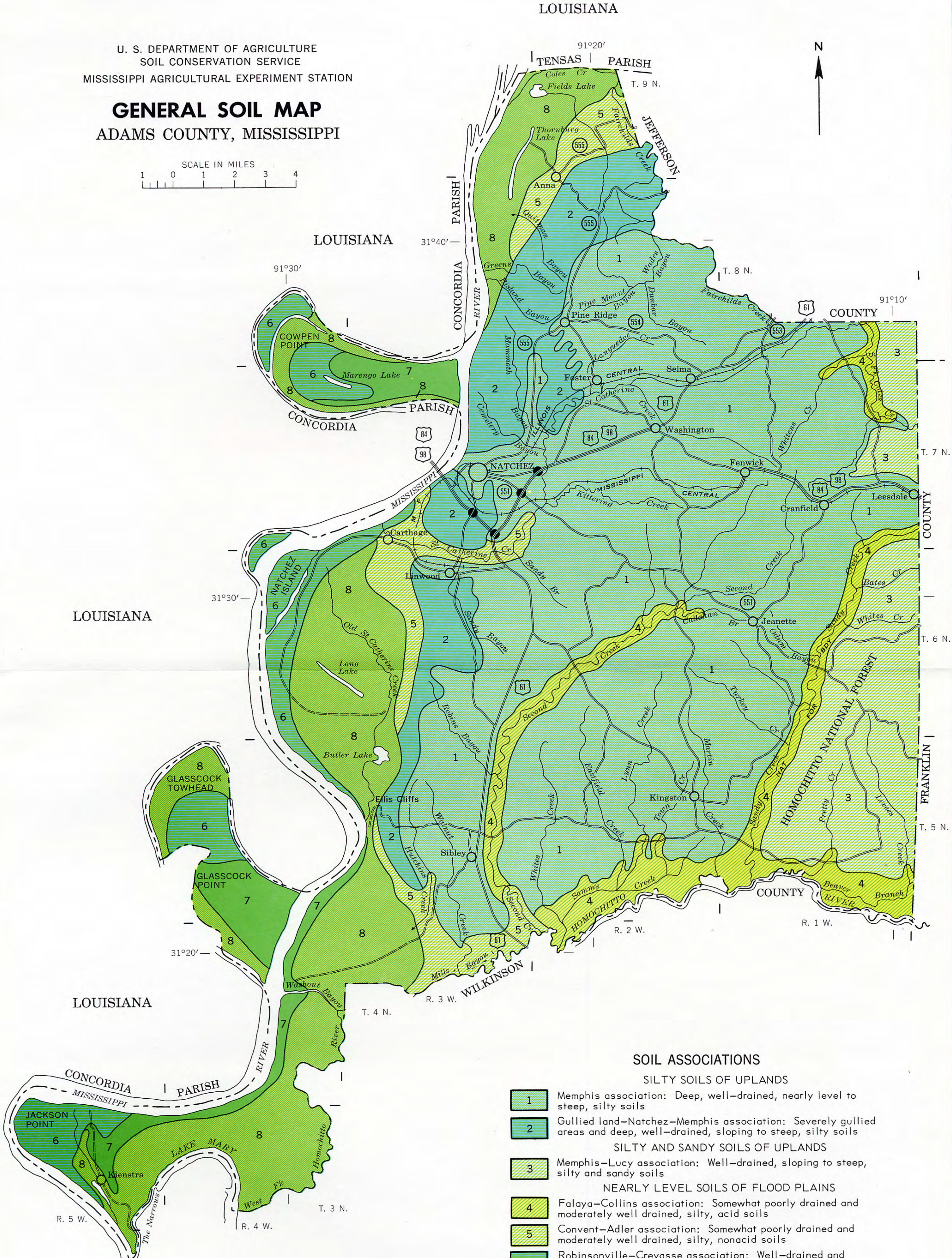
Water table. The highest part of the soil or underlying rock material that is wholly saturated with water. In some places an upper, or perched, water table may be separated from a lower one by a dry zone.

Upland (geologic). Land consisting of material unworked by water in recent geologic time and lying, in general, at a higher elevation than the alluvial plain or stream terrace. Land above the lowlands along rivers.

NRCS Accessibility Statement

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
MISSISSIPPI AGRICULTURAL EXPERIMENT STATION

GENERAL SOIL MAP
ADAMS COUNTY, MISSISSIPPI



SOIL ASSOCIATIONS

SILTY SOILS OF UPLANDS

1 Memphis association: Deep, well-drained, nearly level to steep, silty soils

2 Gullied land–Natchez–Memphis association: Severely gullied areas and deep, well-drained, sloping to steep, silty soils

SILTY AND SANDY SOILS OF UPLANDS

3 Memphis–Lucy association: Well-drained, sloping to steep, silty and sandy soils

NEARLY LEVEL SOILS OF FLOOD PLAINS

4 Falaya–Collins association: Somewhat poorly drained and moderately well drained, silty, acid soils

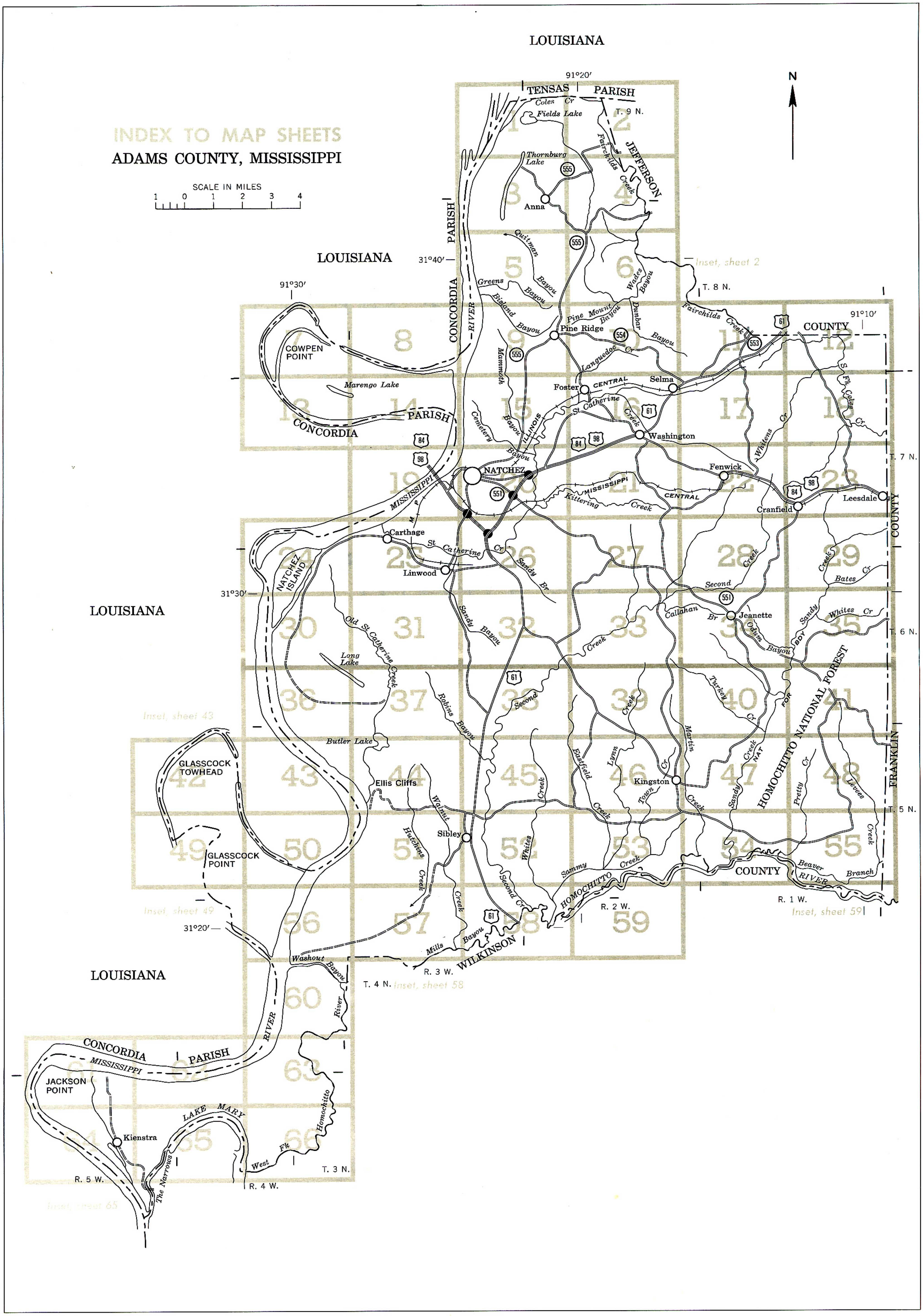
5 Convent–Adler association: Somewhat poorly drained and moderately well drained, silty, nonacid soils

6 Robinsonville–Crevasse association: Well-drained and excessively drained, loamy and sandy, nonacid soils

7 Bruin–Convent–Robinsonville association: Somewhat poorly drained to well-drained, loamy, nonacid soils

8 Sharkey–Tunica–Newellton association: Poorly drained and somewhat poorly drained, clayey, nonacid soils

August 1968


INDEX TO MAP SHEETS
ADAMS COUNTY, MISSISSIPPI
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1 0 1 2 3 4
LOUISIANA
TENSAS PARISH
JEFFERSON COUNTY
FRANKLIN COUNTY
WILKINSON COUNTY
CONCORDIA PARISH
HOMOCHITTO NATIONAL FOREST
91°20′
91°30′
91°10′
31°40′
31°30′
31°20′
T. 9 N.
T. 8 N.
T. 7 N.
T. 6 N.
T. 5 N.
T. 4 N.
T. 3 N.
R. 1 W.
R. 2 W.
R. 3 W.
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NATCHEZ ISLAND
GLASSCOCK TOWHEAD
GLASSCOCK POINT
JACKSON POINT
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Homochitto River
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The Narrows
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Butler Lake
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Quitman Bayou
Greens Bayou
Bisland Bayou
Pine Mount Bayou
Wades Bayou
Dunbar Bayou
Languedoc Cr
Mammoth Bayou
Cemetery Bayou
St Catherine Creek
Old St Catherine Creek
Kittering Creek
Sandy Br
Sandy Bayou
Second Creek
Callahan Br
Odum Bayou
Whitens Cr
S Fk Coles Cr
Sandy Creek
Bates Cr
Whites Cr
Robins Bayou
Turkey Cr
Martin Cr
Town Creek
Lynn Creek
Eastfield Creek
Whites Creek
Sammy Creek
Walnut
Hutchins Creek
Mills Bayou
Second Cr
Pretty Cr
Levees Creek
Beaver Branch
Washout Bayou
West Fk Homochitto
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Mississippi Central
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CONVENTIONAL SIGNS

WORKS AND STRUCTURES

Highways and roads
- Dual
- Good motor
- Poor motor
- Trail

Highway markers
- National Interstate
- U. S.
- State or county

Railroads
- Single track
- Multiple track
- Abandoned

Bridges and crossings
- Road
- Trail, foot
- Railroad
- Ferry — FY
- Ford — FORD
- Grade
- R. R. over
- R. R. under

Buildings
- School
- Church

Mines and Quarries

Pits, gravel or other

Sawmill

Station, forest fire or lookout

Indian mound

Power line

Pipeline

Cemetery

Dams

Levee

Tanks

Well, oil or gas

BOUNDARIES

- National or state
- County
- Reservation
- Land grant
- Small park, cemetery, airport

DRAINAGE

Streams, double-line
- Perennial
- Intermittent

Streams, single-line
- Perennial
- Intermittent
  - Crossable with tillage implements
  - Not crossable with tillage implements
- Unclassified

Canals and ditches — CANAL

Lakes and ponds
- Perennial — water, w
- Intermittent

Wells, water — flowing

Spring

Marsh or swamp

Wet spot

Alluvial fan

Drainage end

RELIEF

Escarpments
- Bedrock
- Other

Prominent peak

Depressions (Large, Small)
- Crossable with tillage implements
- Not crossable with tillage implements
- Contains water most of the time

SOIL SURVEY DATA

- Soil boundary and symbol — Dx
- Gravel
- Stony, very stony
- Rock outcrops
- Chert fragments
- Clay spot
- Sand spot
- Gumbo or scabby spot
- Made land
- Severely eroded spot
- Blowout, wind erosion
- Gully

SOIL LEGEND

The first letter, always a capital, is the initial one of the soil name. The second letter is a capital if the mapping unit is one of the low intensity survey; otherwise it is a small letter. The third capital letter, if used, shows the slope. Most symbols without a slope letter are those of nearly level soils, but some are for soils and land types that have a considerable range of slope. A final number, 2 or 3, in the symbol shows that the soil is eroded or severely eroded.

MEDIUM INTENSITY SURVEY

SYMBOL	NAME
Ad	Adler silt loam
Bc	Bowdre clay
Bn	Bruin silt loam
Br	Bruin silty clay loam
Bu	Bruno loamy fine sand
Co	Collins silt loam
Cr	Commerce silt loam, frequently flooded
Cs	Commerce silt loam
Cv	Convent silt loam
Cw	Crevasse sand
Cx	Crevasse–Bruno complex
Fa	Falaya silt loam
Gu	Gullied land
GxF	Gullied land–Natchez complex, 17 to 60 percent slopes
MeA	Memphis silt loam, 0 to 2 percent slopes
MeB2	Memphis silt loam, 2 to 5 percent slopes, eroded
MeC2	Memphis silt loam, 5 to 8 percent slopes, eroded
MeD	Memphis silt loam, 8 to 17 percent slopes
MeD2	Memphis silt loam, 8 to 17 percent slopes, eroded
MeF2	Memphis silt loam, 17 to 60 percent slopes, eroded
MeF3	Memphis silt loam, 12 to 60 percent slopes, severely eroded
MnF	Memphis–Natchez complex, 17 to 60 percent slopes
Mo	Morganfield silt loam
Ne	Newellton clay
Ro	Robinsonville very fine sandy loam
Sh	Sharkey clay
TaA	Tippo silt loam, 0 to 3 percent slopes
Tc	Tunica clay
Tp	Tunica clay, depressed
Vc	Vicksburg silt loam, local alluvium
Wa	Waverly silt loam

LOW INTENSITY SURVEY [1]

SYMBOL	NAME
BS	Bowdre–Sharkey association
BV	Bruno and Vicksburg soils
CA	Convent–Adler association
CB	Convent–Bruin association
FF	Falaya association
LME	Lucy–Memphis association, hilly
MGE	Memphis–Gullied land association, hilly
MSE	Memphis–Susquehanna association, hilly
ST	Sharkey–Tunica association
TN	Tunica–Newellton association

1/ The composition of these units is more variable than that of the others in the county but has been controlled well enough to interpret for the expected use of the soils concerned.

Soil map constructed 1967 by Cartographic Division, Soil Conservation Service, USDA, from 1964 aerial photographs. Controlled mosaic based on Mississippi plane coordinate system, west zone, transverse Mercator projection, 1927 North American datum.

GUIDE TO MAPPING UNITS

For a full description of a mapping unit, read both the description of the mapping unit and the soil series to which the mapping unit belongs. Other information is given in the text and tables as follows: acreage and extent, table 1, p. 5; estimated yields, table 2, p. 27; woodland forage sites, p. 32; engineering uses of the soils, tables 3, 4, and 5, pp. 34 through 43; and wildlife suitability groups, pp. 44 and 45.

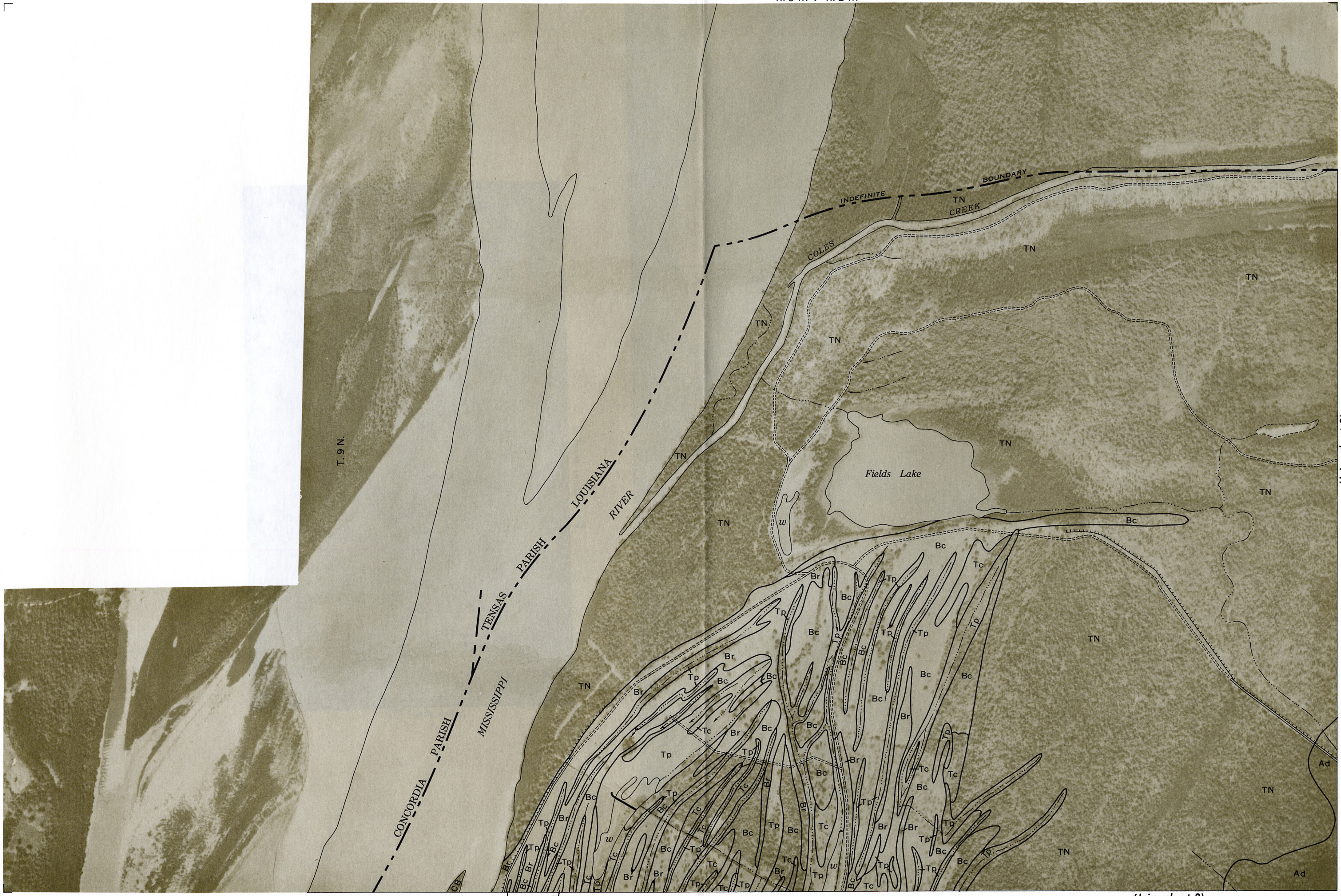
MEDIUM INTENSITY

Map symbol	Mapping units	Page	Capability unit		Woodland suitability group		Woodland forage site	Wildlife suitability group
			Symbol	Page	Number	Page	Name	Number
Ad	Adler silt loam	6	IIw-1	24	2	29	----------	II
Bc	Bowdre clay	7	IIIw-1	25	10	30	----------	III
Bn	Bruin silt loam	7	I-1	23	8	30	----------	III
Br	Bruin silty clay loam	8	IIw-2	24	8	30	----------	III
Bu	Bruno loamy fine sand	8	IIIw-2	25	6	30	----------	III
Co	Collins silt loam	9	IIw-1	24	3	29	Loess Wet Lands	II
Cr	Commerce silt loam, frequently flooded	10	IVw-1	26	8	30	----------	III
Cs	Commerce silt loam	9	I-1	23	8	30	----------	III
Cv	Convent silt loam	10	IIw-3	25	1	29	----------	II
Cw	Crevasse sand	11	IVs-1	26	7	30	----------	III
Cx	Crevasse-Bruno complex	11						
	Crevasse soil	--	IVs-1	26	7	30	----------	II
	Bruno soil	--	IVs-1	26	6	30	----------	II
Fa	Falaya silt loam	12	IIw-3	25	4	29	Loess Wet Lands	II
Gu	Gullied land	12	VIIe-1	26	14	31	Deep Loess Steep Hills	I
GxF	Gullied land-Natchez complex, 17 to 60 percent slopes	12	VIIe-1	26	13	31	Deep Loess Steep Hills	I
MeA	Memphis silt loam, 0 to 2 percent slopes	14	I-3	23	13	31	Deep Loess Hills	I
MeB2	Memphis silt loam, 2 to 5 percent slopes, eroded	14	IIe-1	23	13	31	Deep Loess Hills	I
MeC2	Memphis silt loam, 5 to 8 percent slopes, eroded	14	IIIe-1	25	13	31	Deep Loess Hills	I
MeD	Memphis silt loam, 8 to 17 percent slopes	15	IVe-1	26	13	31	Deep Loess Hills	I
MeD2	Memphis silt loam, 8 to 17 percent slopes, eroded	15	IVe-1	26	14	31	Deep Loess Hills	I
MeF2	Memphis silt loam, 17 to 60 percent slopes, eroded	15	VIe-1	26	13	31	Deep Loess Steep Hills	I
MeF3	Memphis silt loam, 12 to 60 percent slopes, severely eroded	15	VIIe-2	26	14	31	Deep Loess Steep Hills	I
MnF	Memphis-Natchez complex, 17 to 60 percent slopes	15	VIe-1	26	13	31	Deep Loess Steep Hills	I
Mo	Morganfield silt loam	16	I-2	23	2	29	----------	II
Ne	Newellton clay	17	IIIw-1	25	10	30	----------	III
Ro	Robinsonville very fine sandy loam	18	I-2	23	9	30	----------	III
Sh	Sharkey clay	18	IVw-1	26	11	30	----------	III
TaA	Tippo silt loam, 0 to 3 percent slopes	20	IIIw-3	25	12	30	Loess Wet Lands	I
Tc	Tunica clay	20	IIIw-1	25	10	30	----------	III
Tp	Tunica clay, depressed	20	IVw-1	26	10	30	----------	III
Vc	Vicksburg silt loam, local alluvium	21	I-2	23	3	29	Loess Wet Lands	II
Wa	Waverly silt loam	21	IIIw-4	25	5	30	Loess Wet Lands	II

LOW INTENSITY

Map symbol	Mapping units	Page	Capability unit symbol	Page	Woodland group number	Page	Woodland forage site name	Wildlife group number
BS	Bowdre-Sharkey association	7						
	Bowdre soil	--	IVw-1	26	10	30	----------	III
	Sharkey soil	--	IVw-1	26	11	30	----------	III
BV	Bruno and Vicksburg soils	8						
	Bruno soil	--	IIIw-2	25	6	30	Loess Wet Lands	II
	Vicksburg soil	--	I-2	23	3	29	Loess Wet Lands	II
CA	Convent-Adler association	10						
	Convent soil	--	IVw-1	26	1	29	----------	II
	Adler soil	--	IVw-1	26	2	29	----------	II
CB	Convent-Bruin association	11						
	Convent soil	--	IVw-1	26	1	29	----------	III
	Bruin soil	--	IVw-1	26	8	30	----------	III
FF	Falaya association	12	IVw-1	26	4	29	Loess Wet Lands	II
LME	Lucy-Memphis association, hilly	13						
	Lucy soil	--	VIIe-2	26	15	31	Deep Loess Steep Hills	I
	Memphis soil	--	VIIe-2	26	14	31	Deep Loess Steep Hills	I
MGE	Memphis-Gullied land association, hilly	15	VIIe-2	26	14	31	Deep Loess Steep Hills	I
MSE	Memphis-Susquehanna association, hilly	16						
	Memphis soil	--	VIIe-2	26	14	31	Deep Loess Steep Hills	I
	Susquehanna soil	--	VIIe-2	26	15	31	Deep Loess Steep Hills	I
ST	Sharkey-Tunica association	18						
	Sharkey soil	--	IVw-1	26	11	30	----------	III
	Tunica soil	--	IVw-1	26	10	30	----------	III
TN	Tunica-Newellton association	20	IVw-1	26	10	30	----------	III

320-512 O - 70 (Face maps)

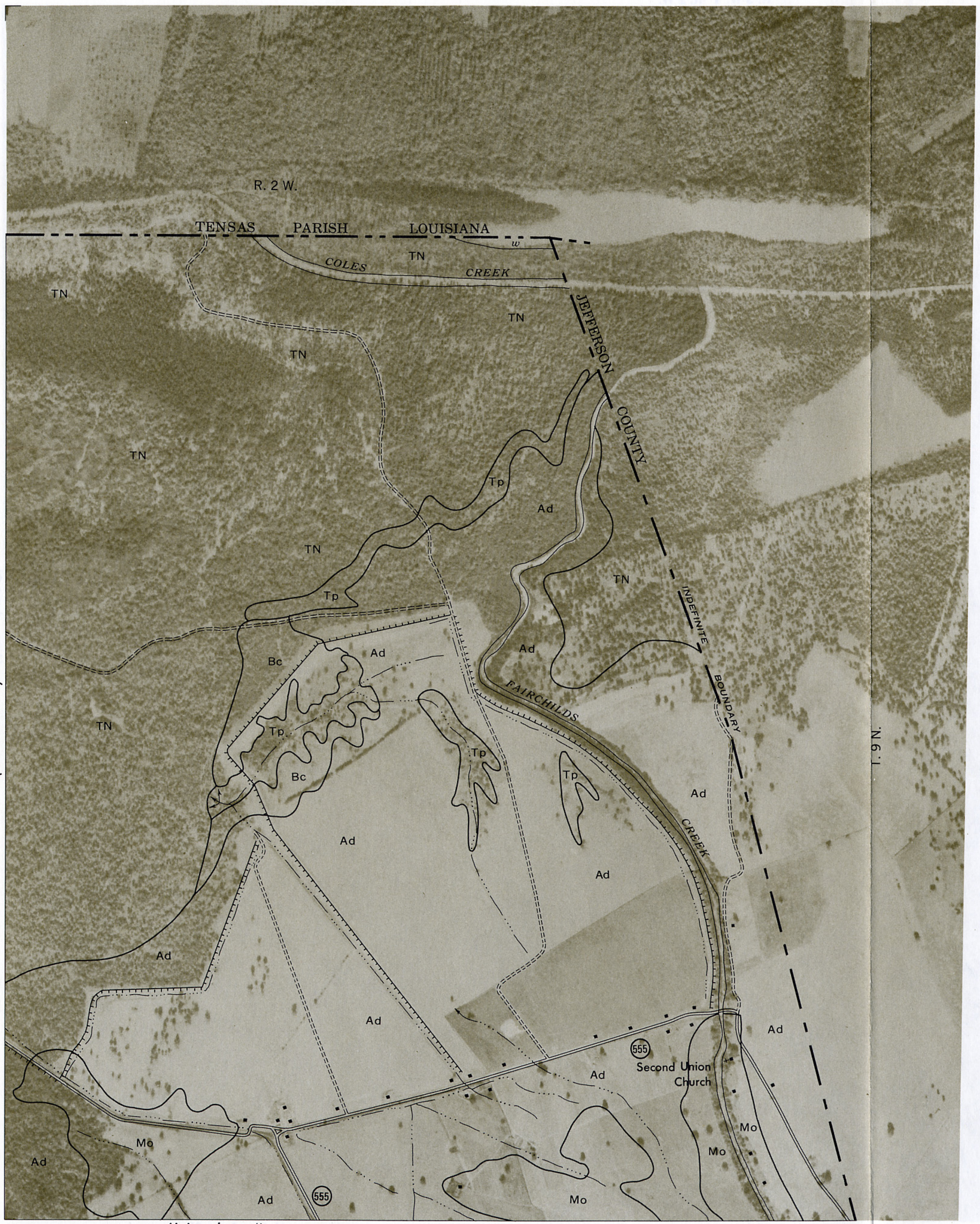


(Joins sheet 2)

(Joins sheet 3)

0 ½ 1 Mile Scale 1:15 840 0 5 000 Feet

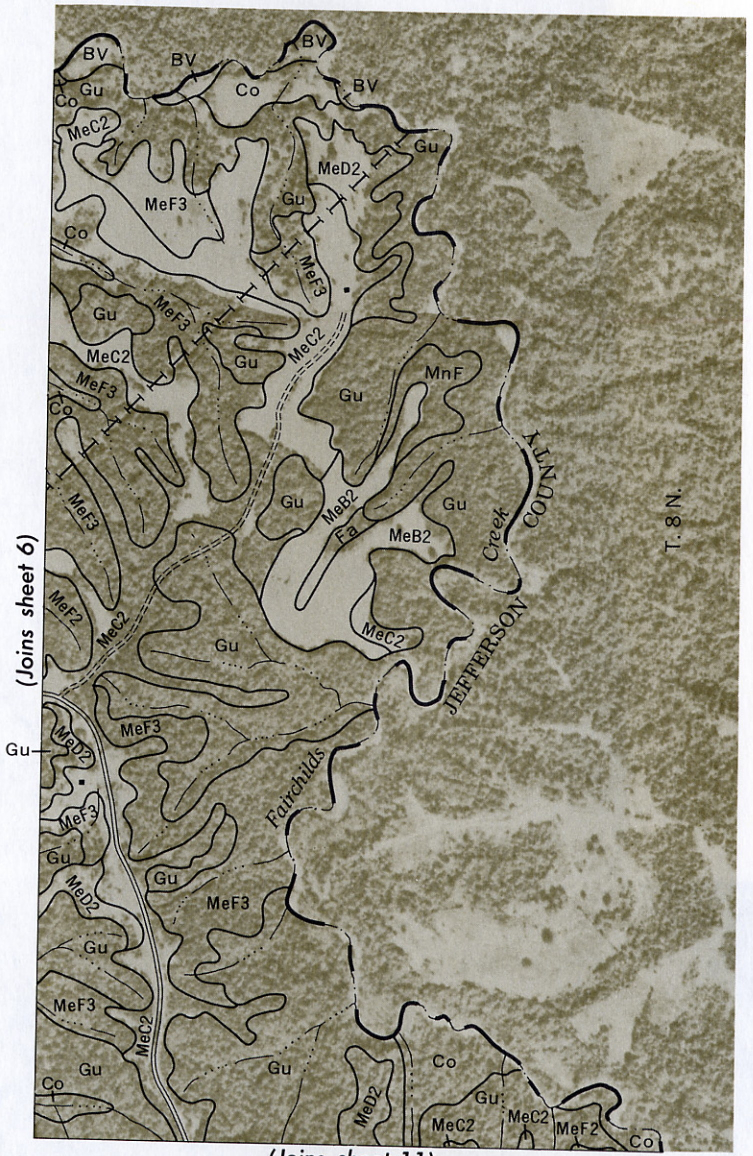
N



(Joins sheet 1)

(Joins sheet 4)

R. 2 W.



(Joins sheet 6)

Gu

(Joins sheet 11)

0 ½ 1 Mile

Scale 1:15 840

0 5 000 Feet

(Joins sheet 1)

3

T. 8 N. | T. 9 N.

(Joins sheet 4)

(Joins sheet 5)

0 ½ 1 Mile

Scale 1 : 15 840

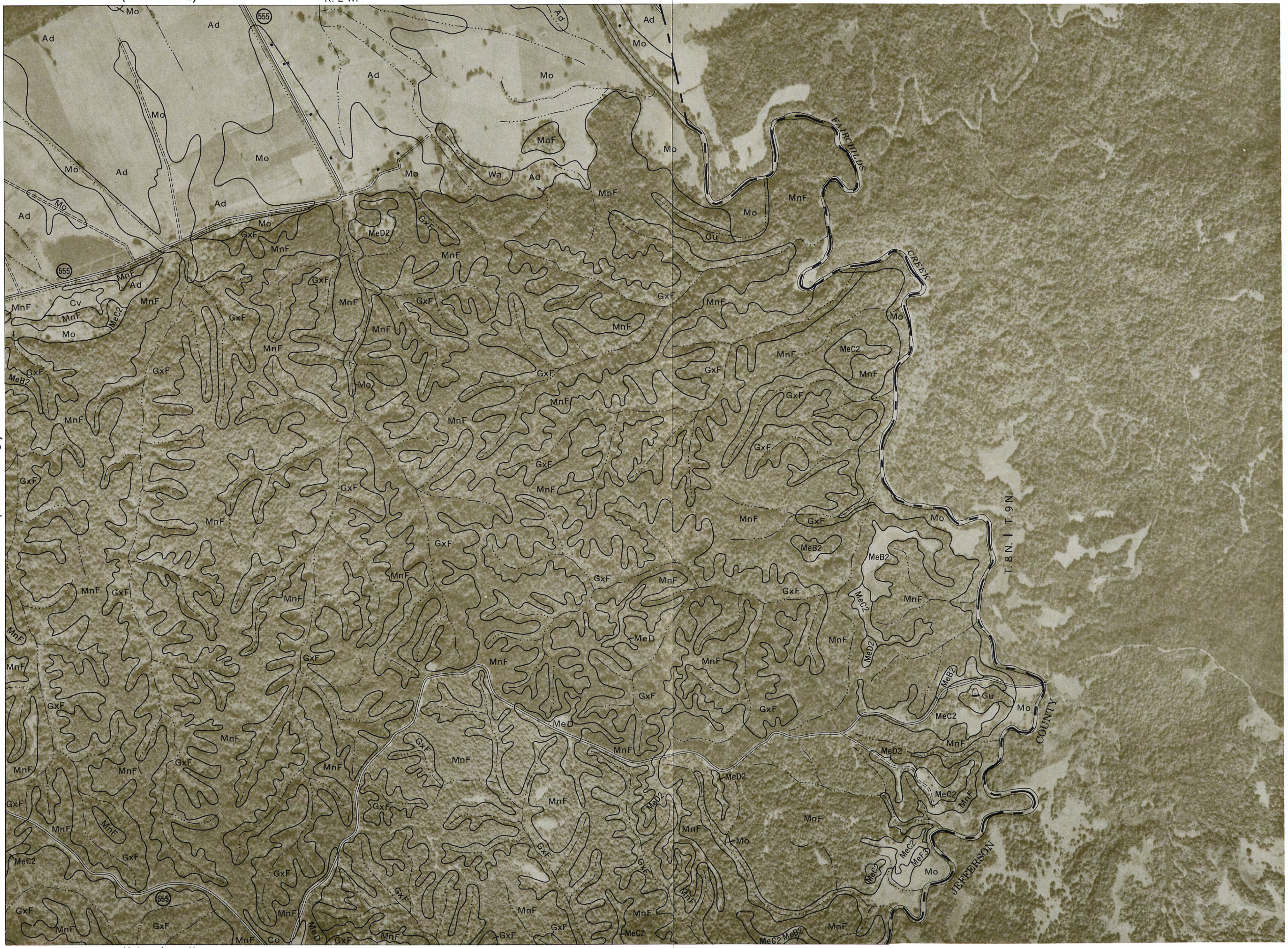
0 5 000 Feet

(Joins sheet 2)

R. 2 W.

N

(Joins sheet 3)



(Joins sheet 6)

0 ½ 1 Mile

Scale 1: 15 840

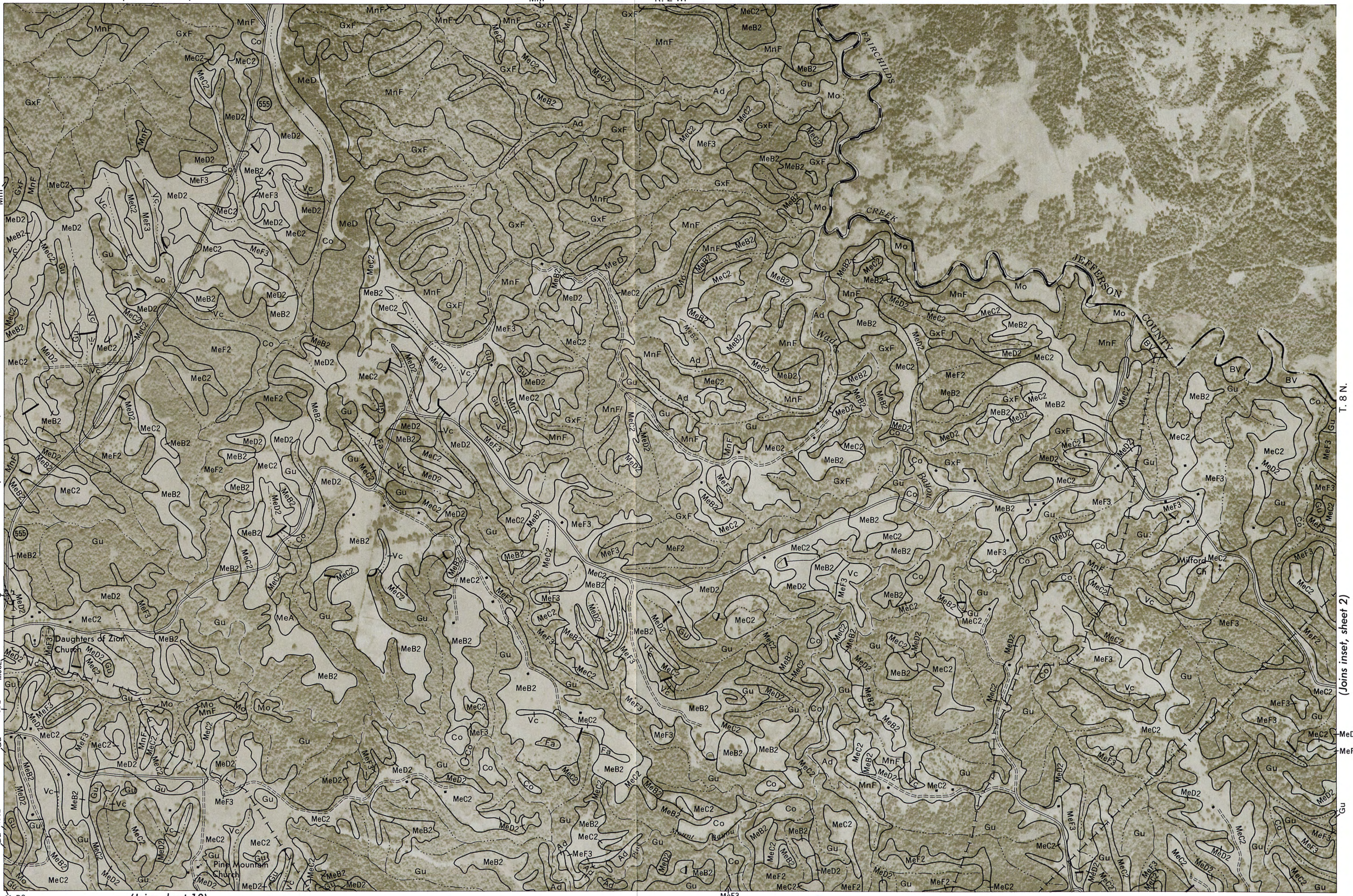
0 5 000 Feet

0 ½ 1 Mile Scale 1:15 840 0 5 000 Feet

(Joins sheet 4)

R. 2 W.

N



(Joins sheet 5)

(Joins inset, sheet 2)

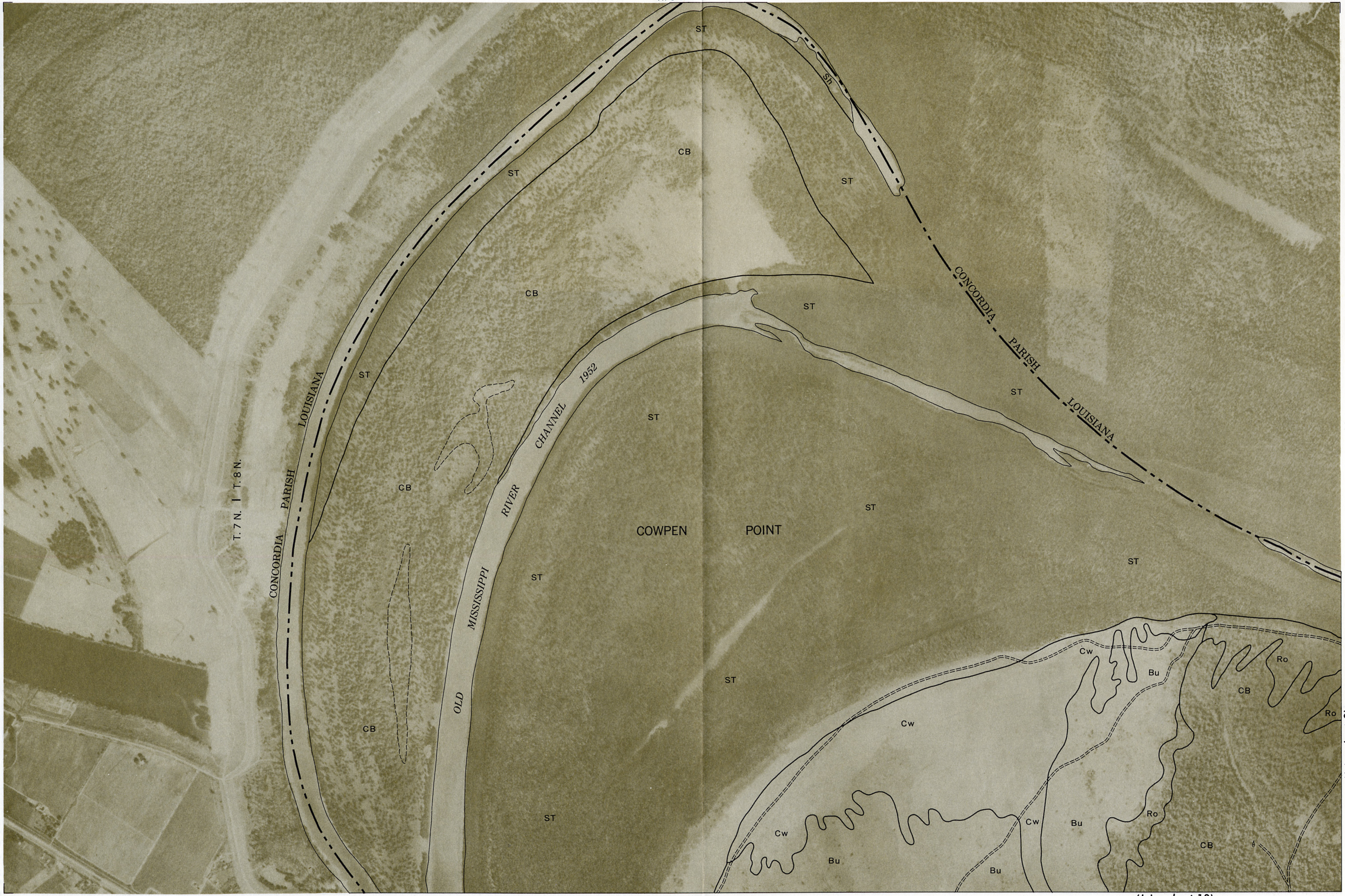
T. 8 N.

(Joins sheet 10)

0 ½ 1 Mile

Scale 1:15 840

0 5 000 Feet



N

(Joins sheet 8)

(Joins sheet 13)

0 ½ 1 Mile

Scale 1 : 15 840

0 5 000 Feet


8
N
R. 3 W.
ST
Ro
CB
Ro
ST
w
CB
ST
CB
CB
CB
CB
CB
Cw
CONCORDIA PARISH LOUISIANA
MISSISSIPPI RIVER
(Joins sheet 7)
(Joins sheet 9)
(Joins sheet 14)
T. 8 N.
T. 7 N.
0
½
1 Mile
Scale 1:15 840
0
5 000 Feet

R. 3 W. | R. 2 W.

(Joins sheet 5)

(Joins sheet 15)

Scale 1 : 15 840

0 ½ 1 Mile

0 5 000 Feet

10

(Joins sheet 6)

R. 2 W.

(Joins sheet 9)

(Joins sheet 11)

(Joins sheet 16)

0 ½ 1 Mile

Scale 1 : 15 840

0 5 000 Feet

T. 7 N. | T. 8 N.

(Joins inset, sheet 2)

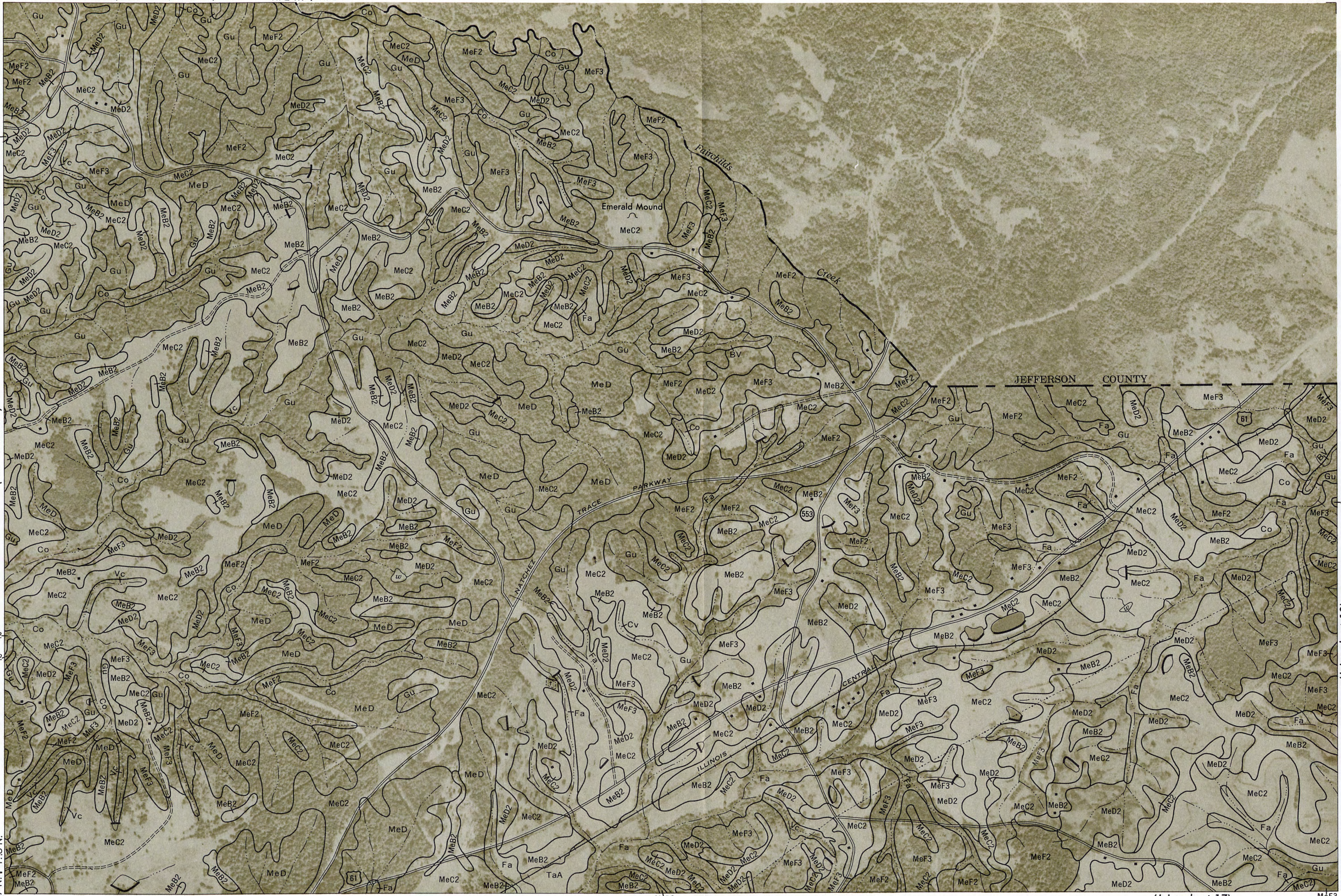
R. 2 W. | R. 1 W.

N

ADAMS COUNTY, MISSISSIPPI NO. 11

(Joins sheet 10)

(Joins sheet 12)



T. 8 N. | T. 7 N.

(Joins sheet 17)

0 ½ 1 Mile
Scale 1:15 840
0 5 000 Feet

(12)

N

(Joins sheet 11)

(Joins sheet 18)

0 ½ 1 Mile
Scale 1:15 840
0 5 000 Feet

T. 7 N. T. 8 N.

ADAMS COUNTY, MISSISSIPPI NO. 12

0 ½ 1 Mile

Scale 1 : 15 840

0 5 000 Feet

(Joins sheet 8)

R. 3 W.

(Joins sheet 19)

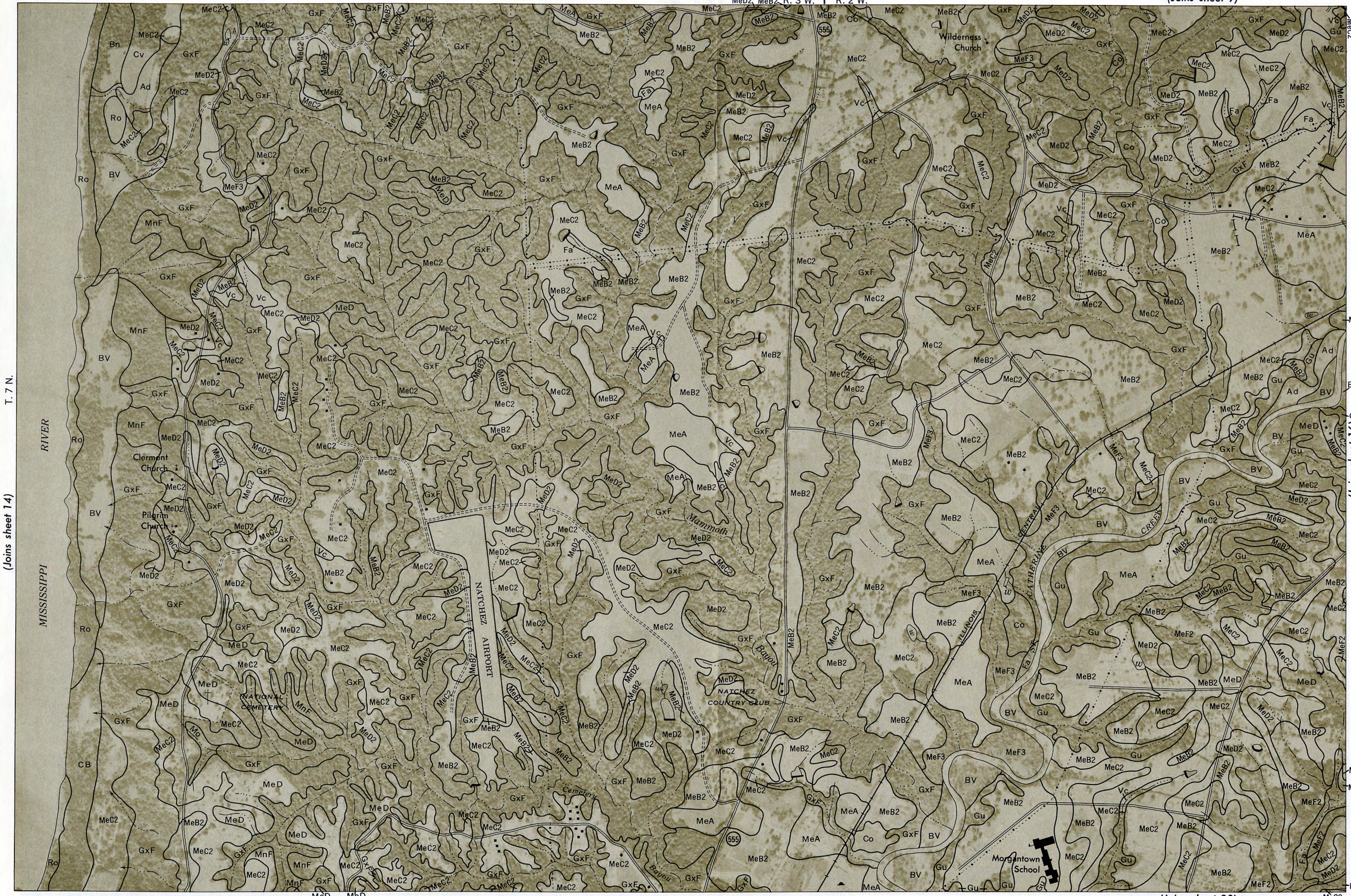
0 ½ 1 Mile

Scale 1 : 15 840

0 5 000 Feet

(Joins sheet 9)

15



(Joins sheet 14)

(Joins sheet 16)

(Joins sheet 20)

0 ½ 1 Mile

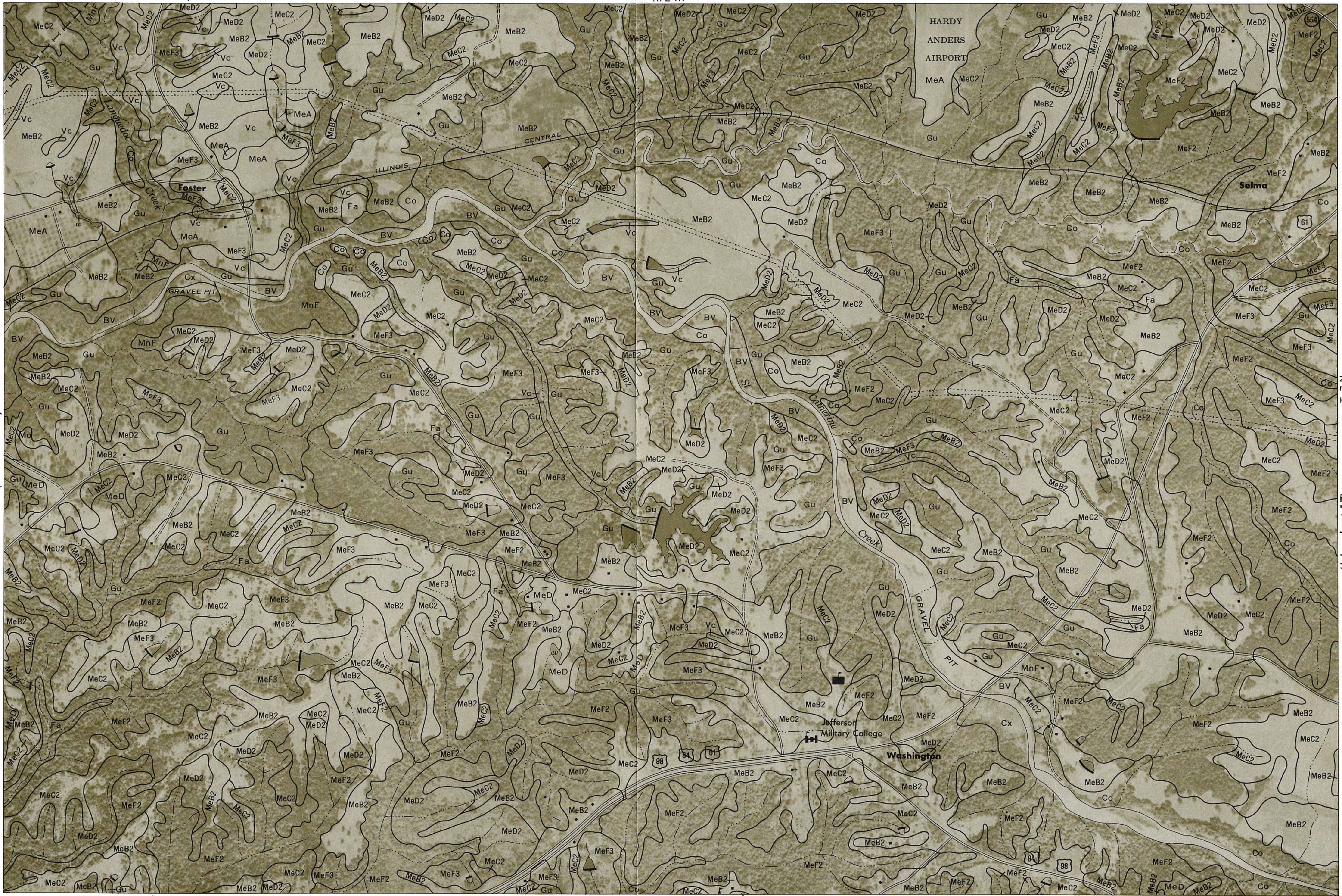
Scale 1 : 15 840

0 5 000 Feet

16

(Joins sheet 10)

R. 2 W.



(Joins sheet 21)

0 ½ 1 Mile Scale 1:15 840 0 5 000 Feet

(17)


R. 2 W. | R. 1 W.
(Joins sheet 11)
(Joins sheet 16)
(Joins sheet 18)
(Joins sheet 22)
T. 7 N.
N
ILLINOIS CENTRAL
Cedar Grove Church
ST CATHERINE CREEK
61
554
Scale 1:15 840
0 ½ 1 Mile
0 5 000 Feet

18

(Joins sheet 12)

R. 1 W.

T. 7 N.

(Joins sheet 17)

(Joins sheet 23)

0 ½ 1 Mile

Scale 1:15 840

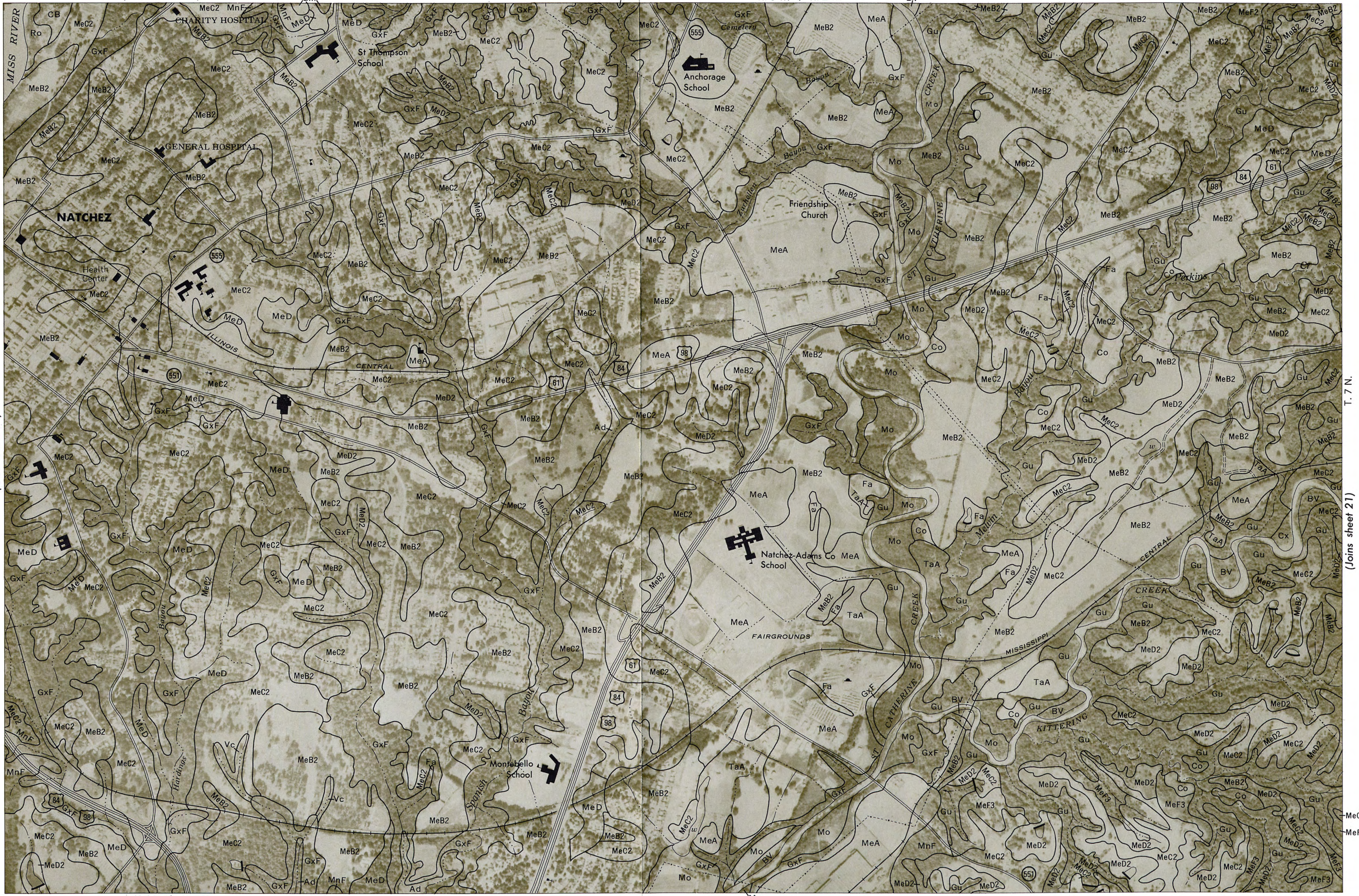
0 5 000 Feet

0 ½ 1 Mile Scale 1 : 15 840 0 5 000 Feet

ADAMS COUNTY, MISSISSIPPI NO. 19

(20)

(Joins sheet 15)



(Joins sheet 19)

(Joins sheet 21)

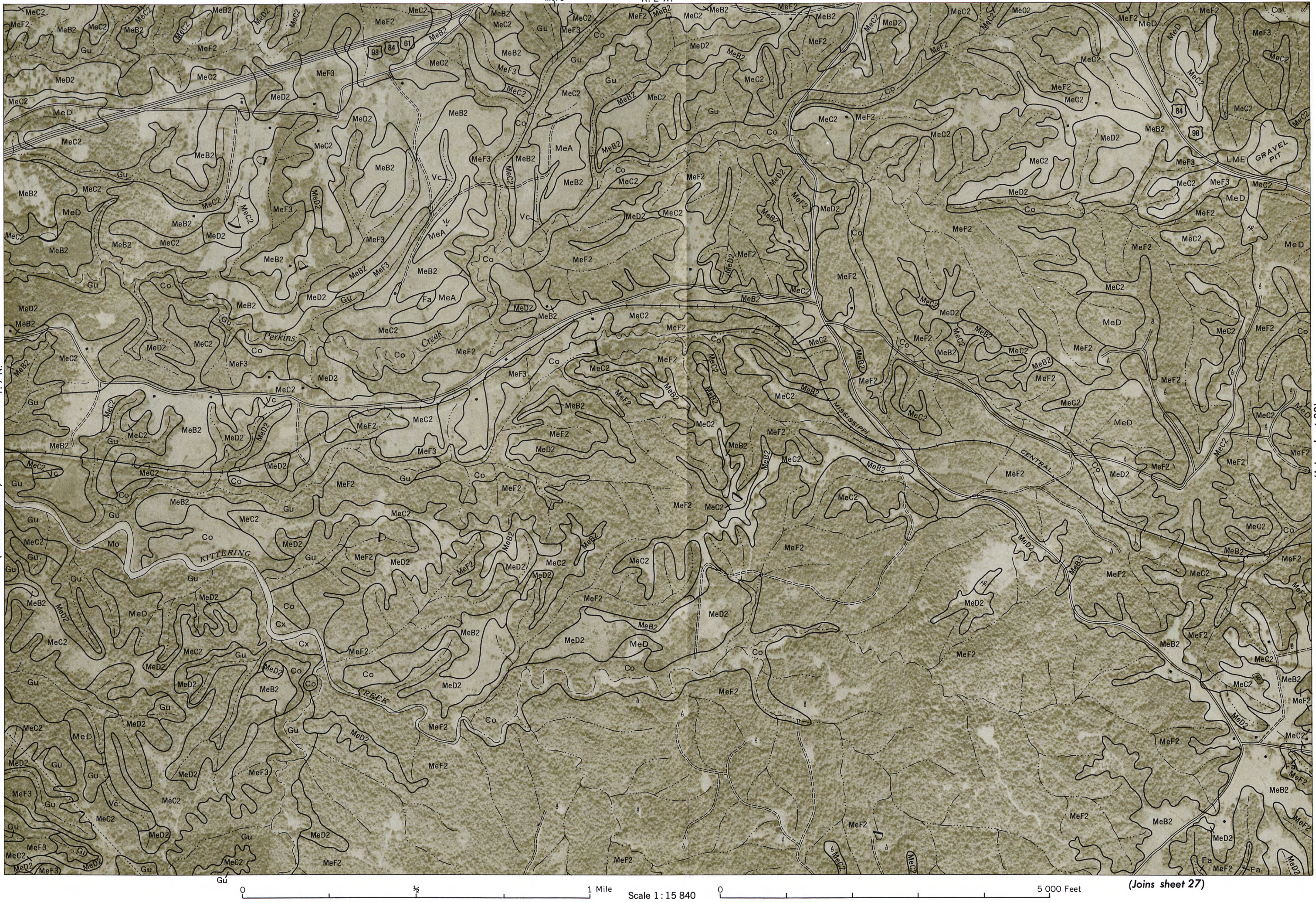
(Joins sheet 26)

0 ½ 1 Mile

Scale 1 : 15 840

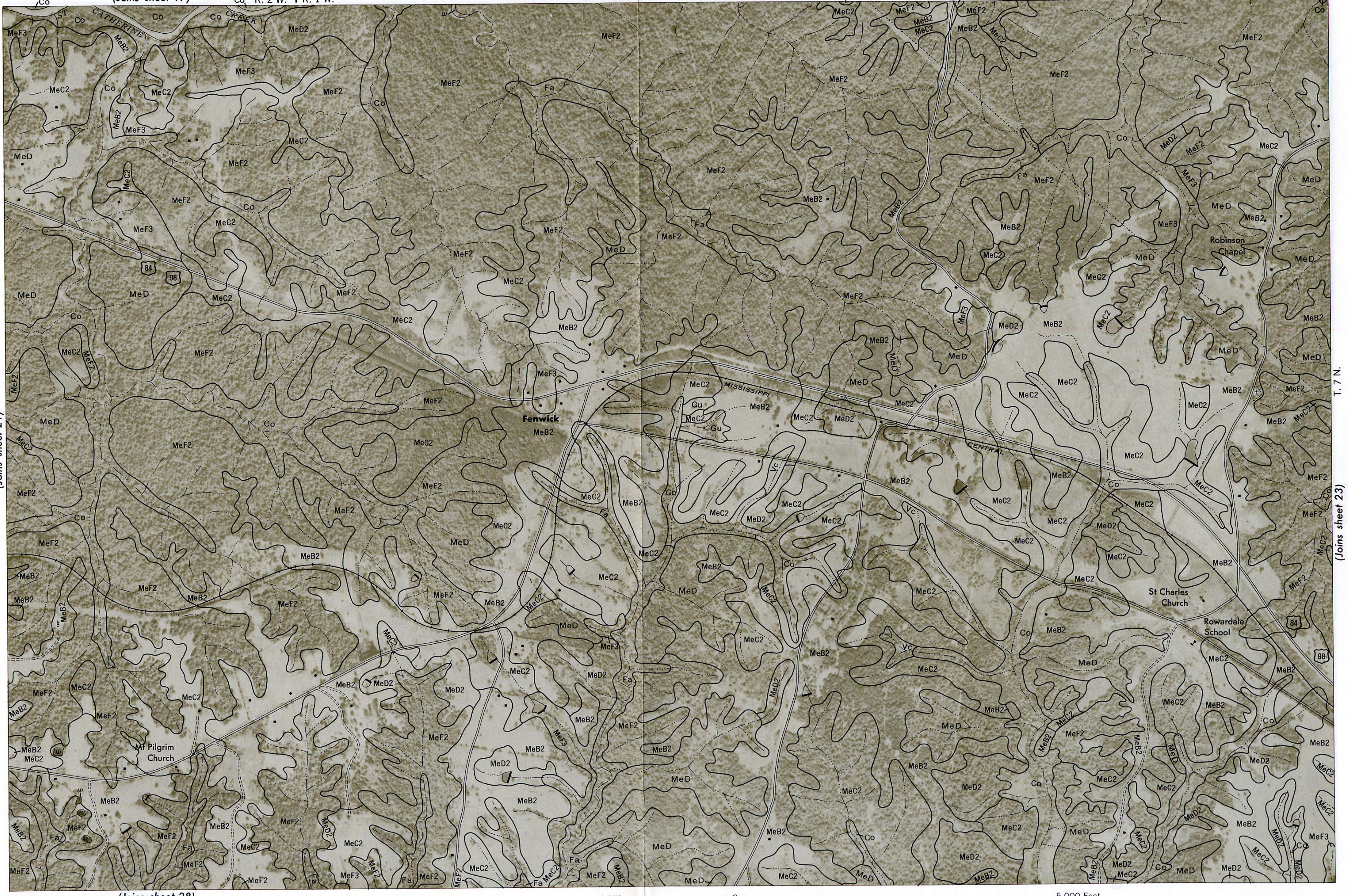
0 5 000 Feet

ADAMS COUNTY, MISSISSIPPI NO. 21



22

(Joins sheet 17) R. 2 W. | R. 1 W.



(Joins sheet 21)

(Joins sheet 23)

T. 7 N.

(Joins sheet 28)

0 ½ 1 Mile

Scale 1:15 840

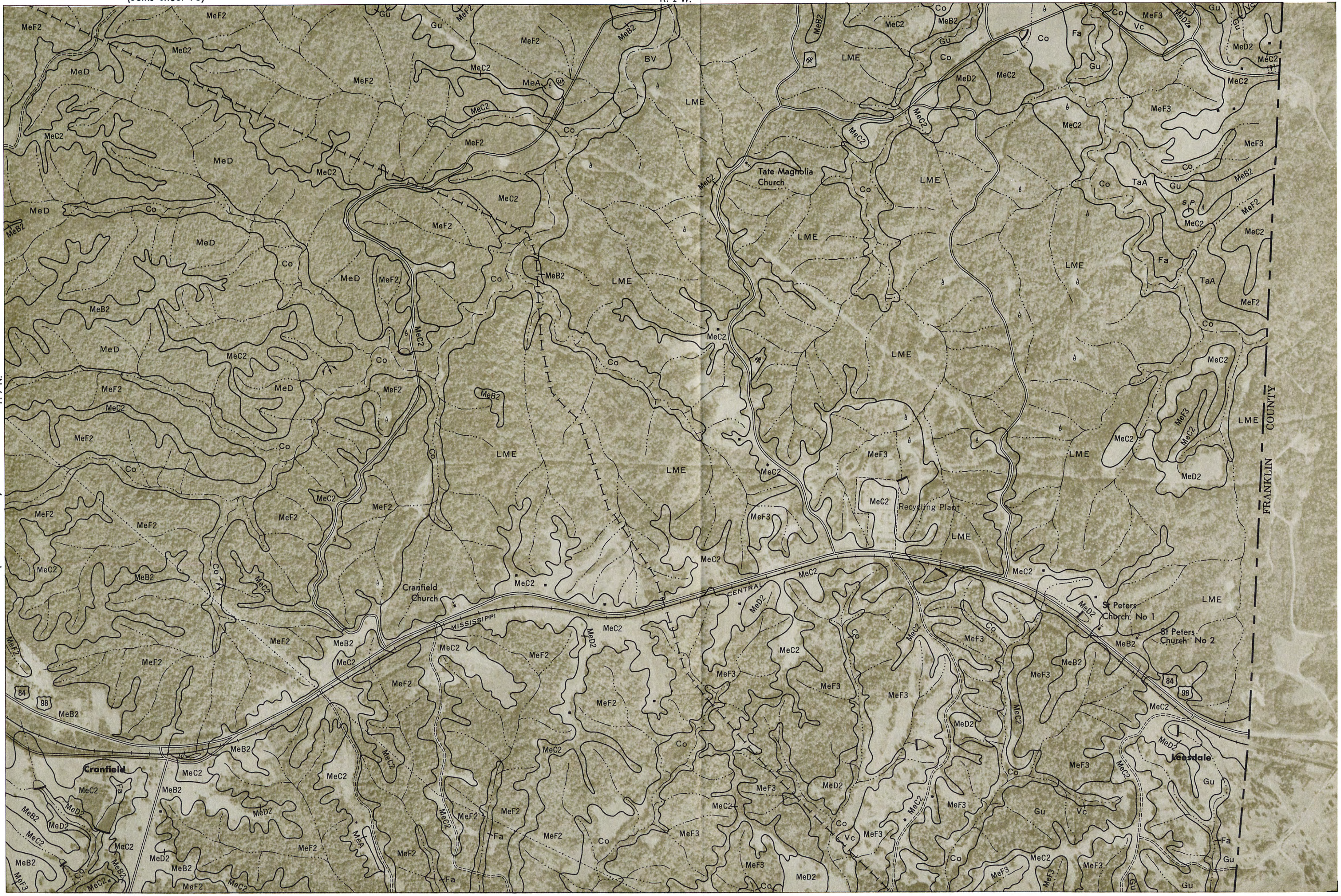
0 5 000 Feet

(Joins sheet 18)

R. 1 W.

T. 7 N.

(Joins sheet 22)



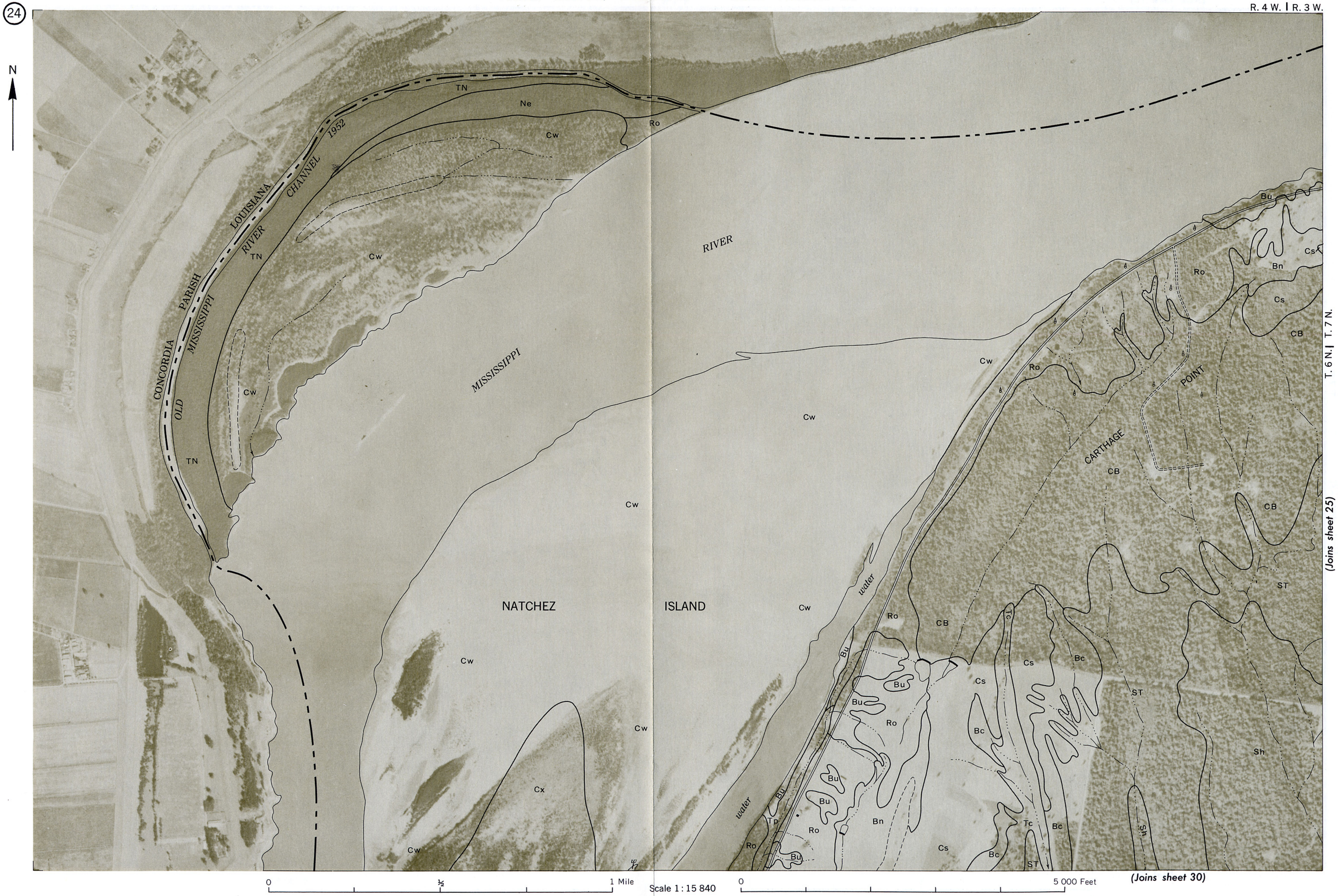
(Joins sheet 29)

0 ½ 1 Mile

Scale 1 : 15 840

0 5 000 Feet

24


N
R. 4 W. | R. 3 W.
T. 6 N. | T. 7 N.
CONCORDIA PARISH LOUISIANA
OLD MISSISSIPPI RIVER CHANNEL 1952
MISSISSIPPI RIVER
NATCHEZ ISLAND
CARTHAGE POINT
water
(Joins sheet 25)
(Joins sheet 30)
0 ½ 1 Mile
Scale 1:15 840
0 5 000 Feet

R. 3 W.

(Joins sheet 19)

(Joins sheet 24)

(Joins sheet 26)

T. 6 N. | T. 7 N.

(Joins sheet 31)

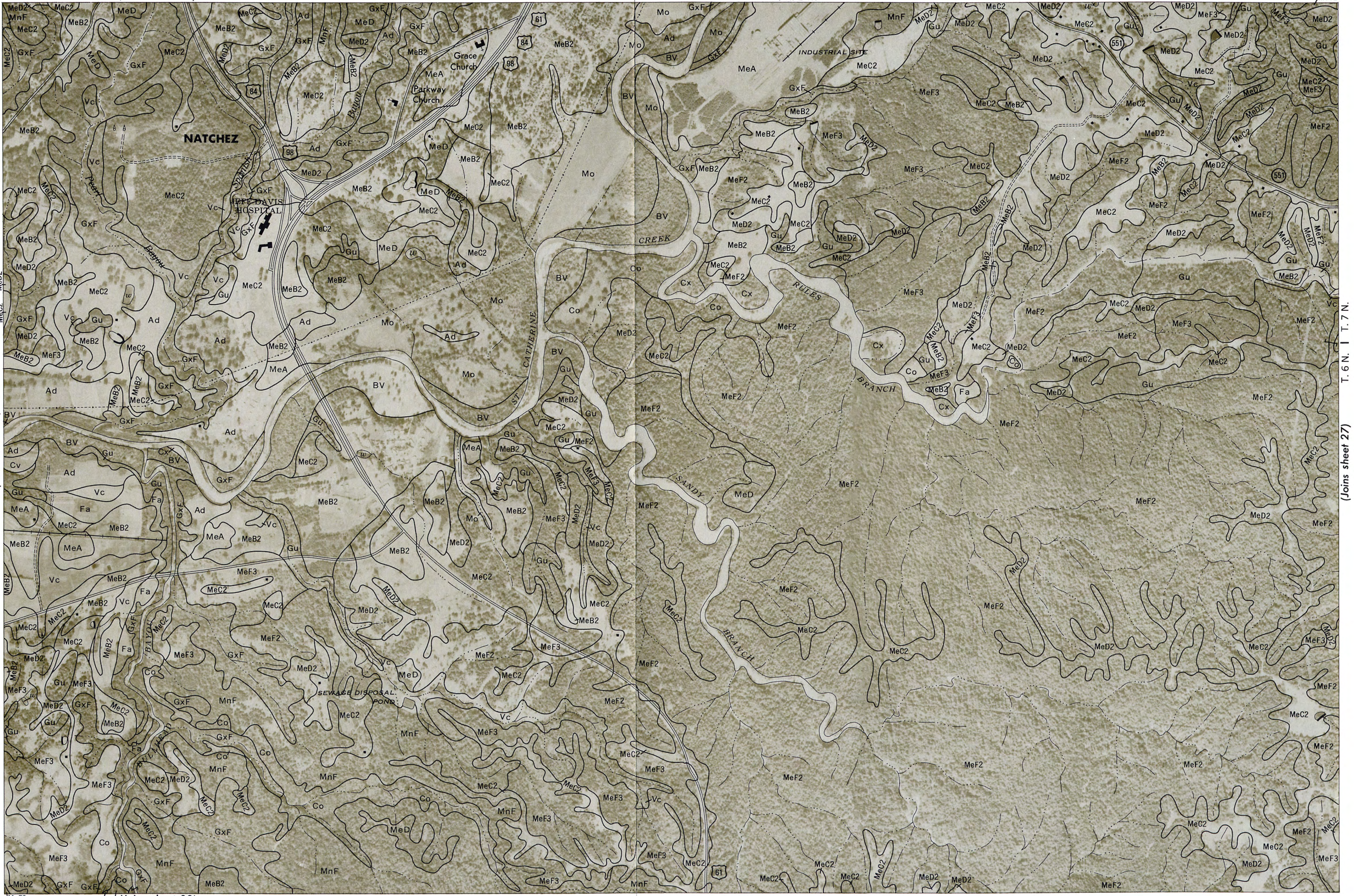
0 ½ 1 Mile Scale 1:15 840 0 5 000 Feet

26

(Joins sheet 20)

R. 3 W. | R. 2 W.

N



(Joins sheet 25)

(Joins sheet 27)

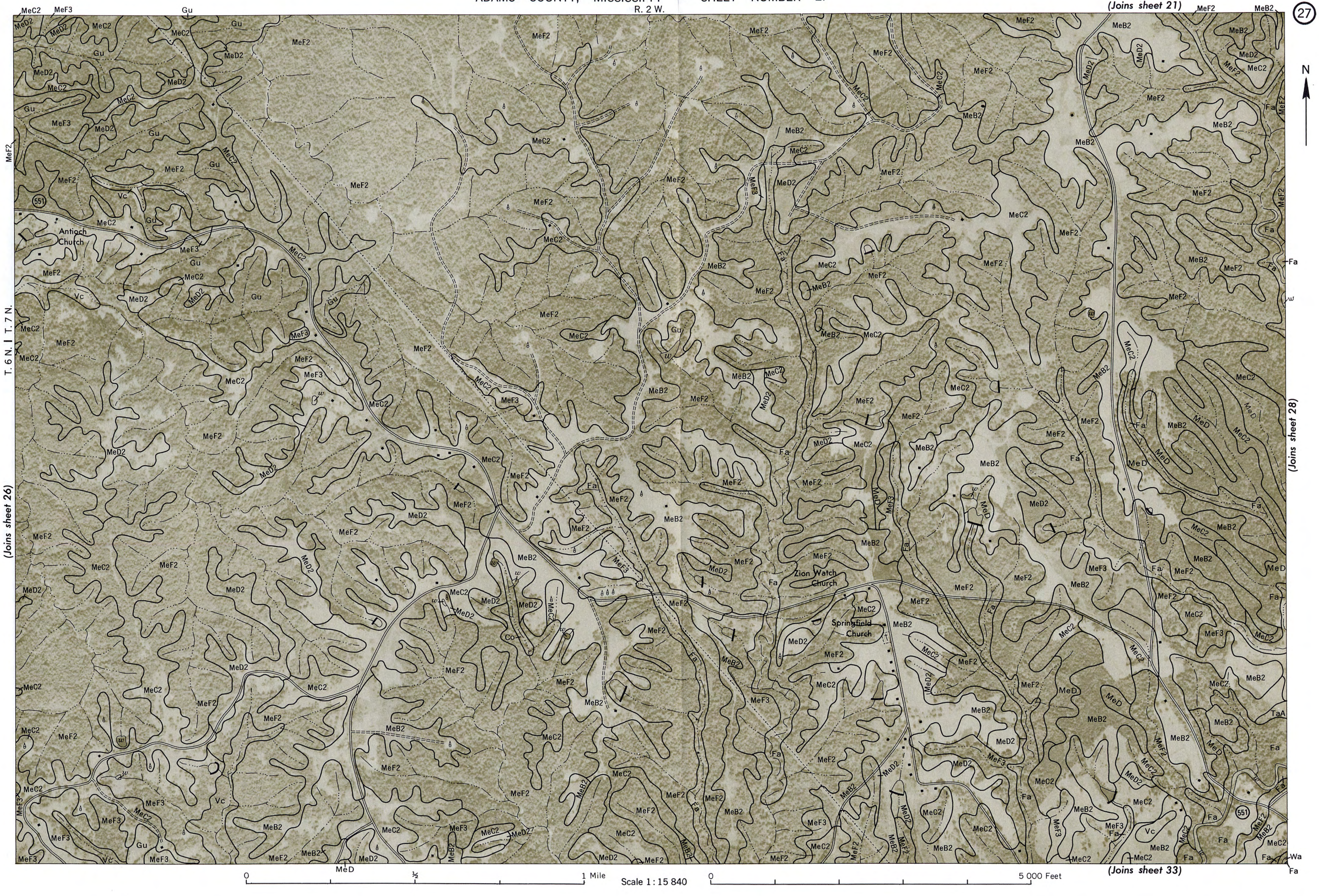
T. 6 N. | T. 7 N.

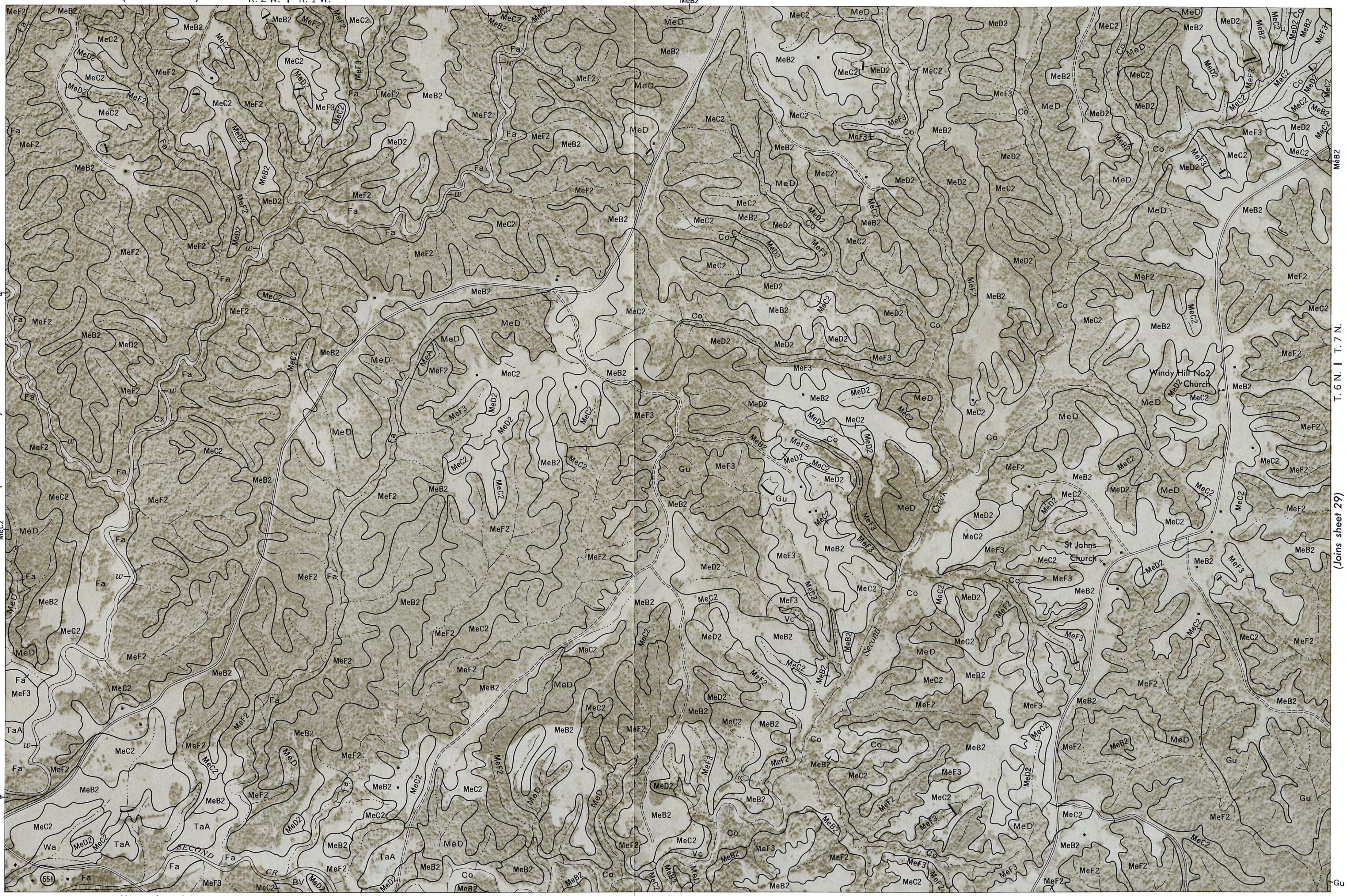
(Joins sheet 32)

0 ½ 1 Mile

Scale 1: 15 840

0 5 000 Feet

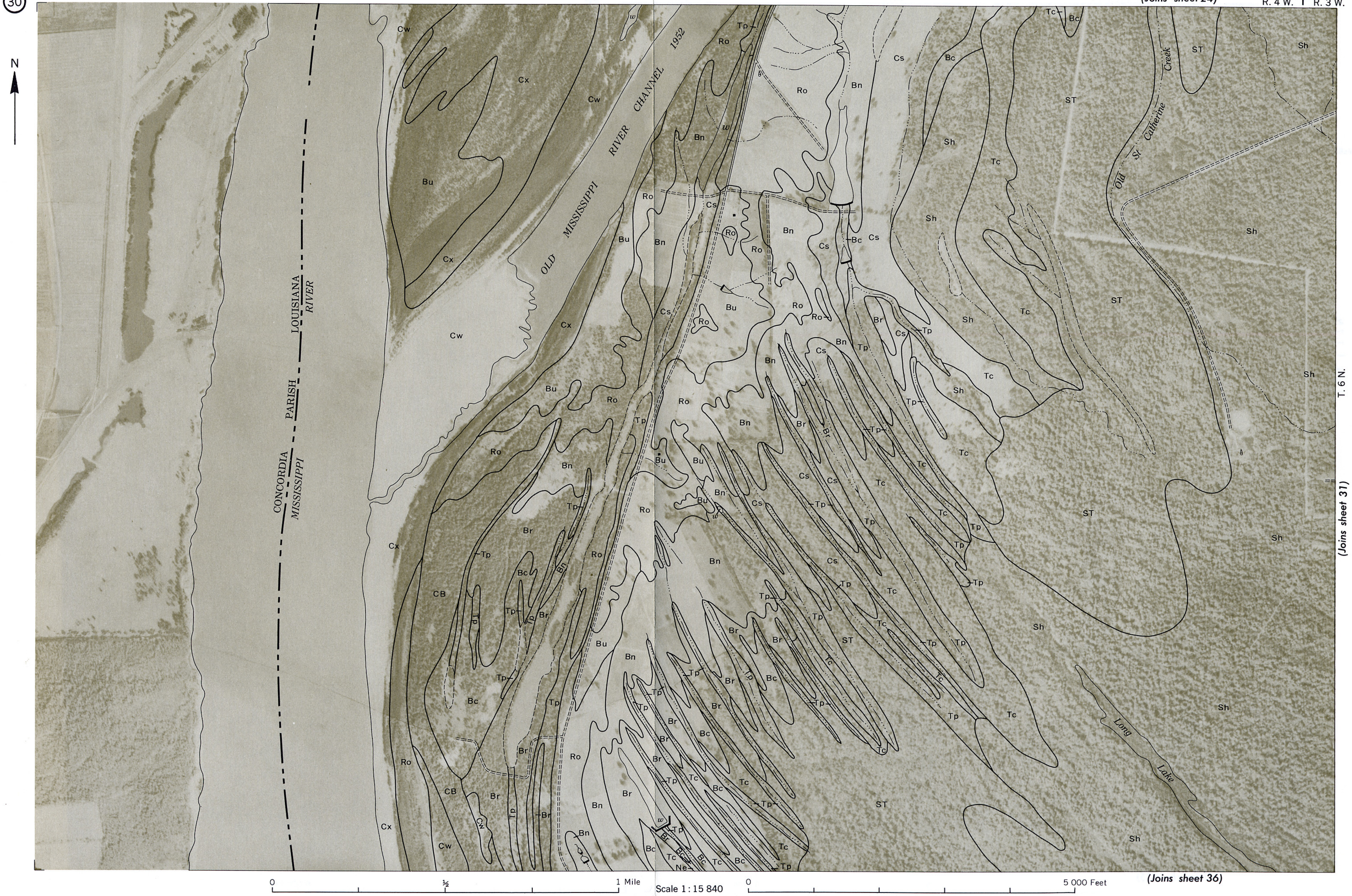

R. 2 W.
(Joins sheet 21)
N
T. 6 N. | T. 7 N.
(Joins sheet 26)
(Joins sheet 28)
(Joins sheet 33)
Antioch Church
Zion Watch Church
Springfield Church
551
0
½
1 Mile
Scale 1:15 840
0
5 000 Feet


28
(Joins sheet 22)
R. 2 W. | R. 1 W.
N
(Joins sheet 27)
(Joins sheet 29)
(Joins sheet 34)
T. 6 N. | T. 7 N.
Windy Hill No 2 Church
St Johns Church
Second Creek
SECOND CR
551
0 ½ 1 Mile
Scale 1:15 840
0 5 000 Feet

ADAMS COUNTY, MISSISSIPPI — SHEET NUMBER 29

ADAMS COUNTY, MISSISSIPPI NO. 29

0 ½ 1 Mile Scale 1: 15 840 0 5 000 Feet


N
(Joins sheet 24)
R. 4 W.
R. 3 W.
T. 6 N.
(Joins sheet 31)
(Joins sheet 36)
CONCORDIA PARISH
LOUISIANA
MISSISSIPPI RIVER
OLD MISSISSIPPI RIVER CHANNEL 1952
Old St. Catherine Creek
Long Lake
0
½
1 Mile
Scale 1 : 15 840
0
5 000 Feet

31

0 ½ 1 Mile Scale 1:15 840 0 5 000 Feet

R. 3 W. | R. 2 W.

(Joins sheet 26)

N

(Joins sheet 31)

T. 6 N.

(Joins sheet 33)

(Joins sheet 38)

0 ½ 1 Mile Scale 1 : 15 840 0 5 000 Feet

R. 2 W.

(Joins sheet 27)

T. 6 N.

(Joins sheet 32)

(Joins sheet 34)

(Joins sheet 39)

0 ½ 1 Mile

Scale 1 : 15 840

0 5 000 Feet

(Joins sheet 28) R. 2 W. R. 1 W.

N

(Joins sheet 33)

T. 6 N.

(Joins sheet 35)

(Joins sheet 40)

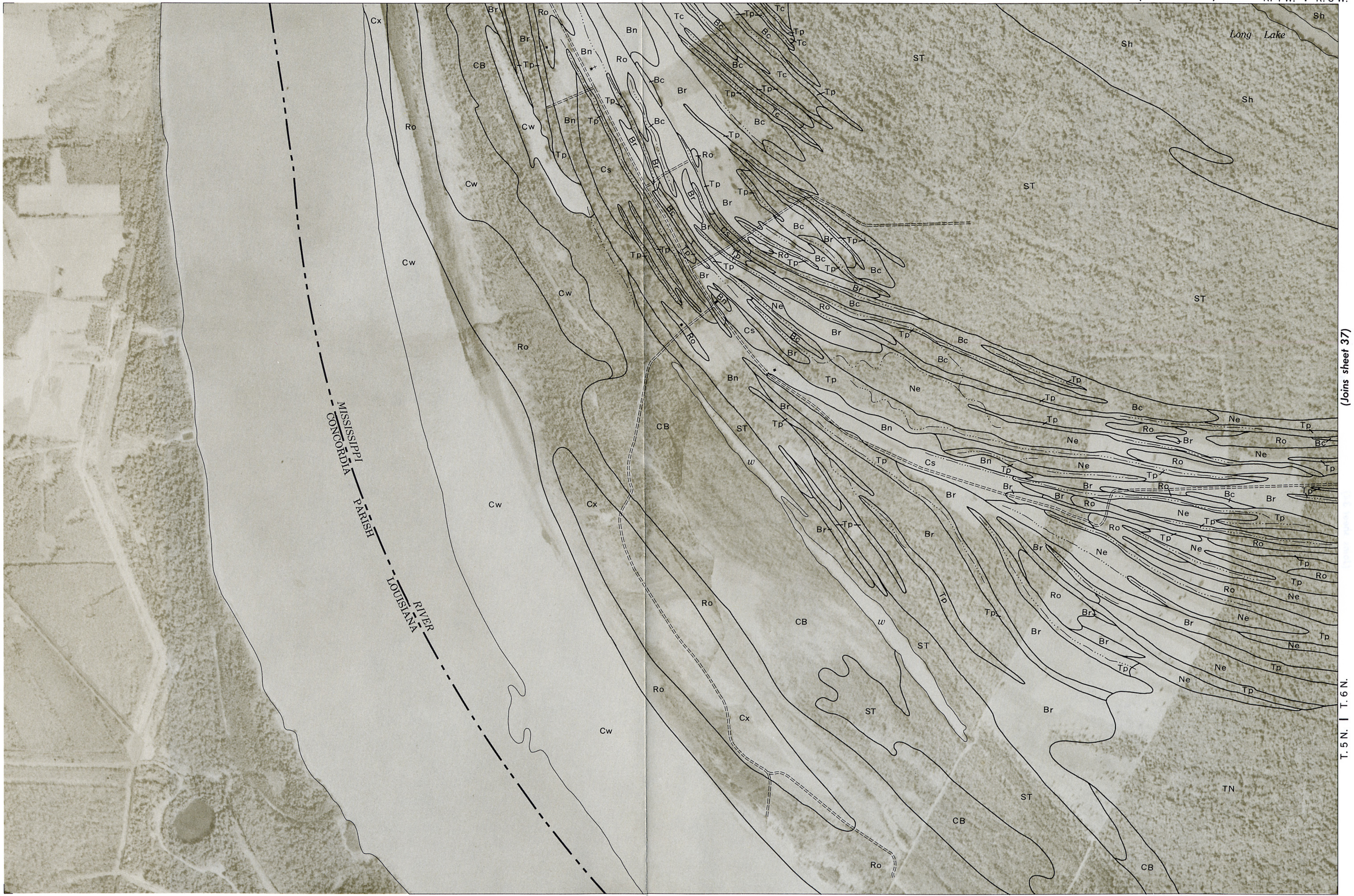
0 ½ 1 Mile Scale 1:15 840 0 5 000 Feet

0 ½ 1 Mile Scale 1: 15 840 0 5 000 Feet

(Joins sheet 30)

R. 4 W. | R. 3 W.

N



(Joins sheet 37)

T. 6 N. | T. 5 N.

(Joins sheet 43)

0 ½ 1 Mile

Scale 1 : 15 840

0 5 000 Feet

R. 3 W.

(Joins sheet 31)

37

(Joins sheet 36)

T. 5 N. | T. 6 N.

(Joins sheet 38)

0 ½ 1 Mile

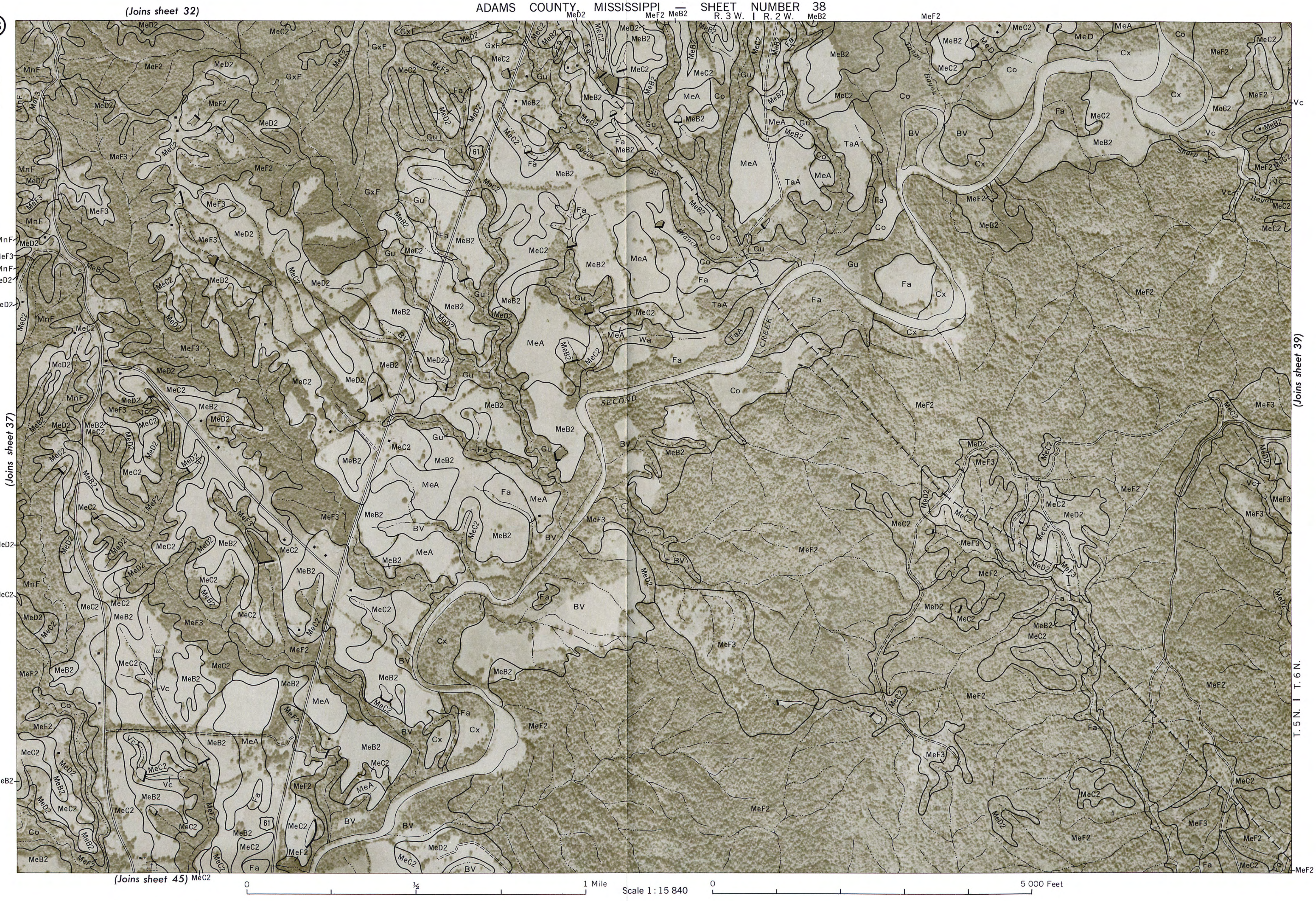
Scale 1 : 15 840

0 5 000 Feet

(Joins sheet 44)

38

ADAMS COUNTY, MISSISSIPPI — SHEET NUMBER 38



ADAMS COUNTY, MISSISSIPPI NO. 38

39

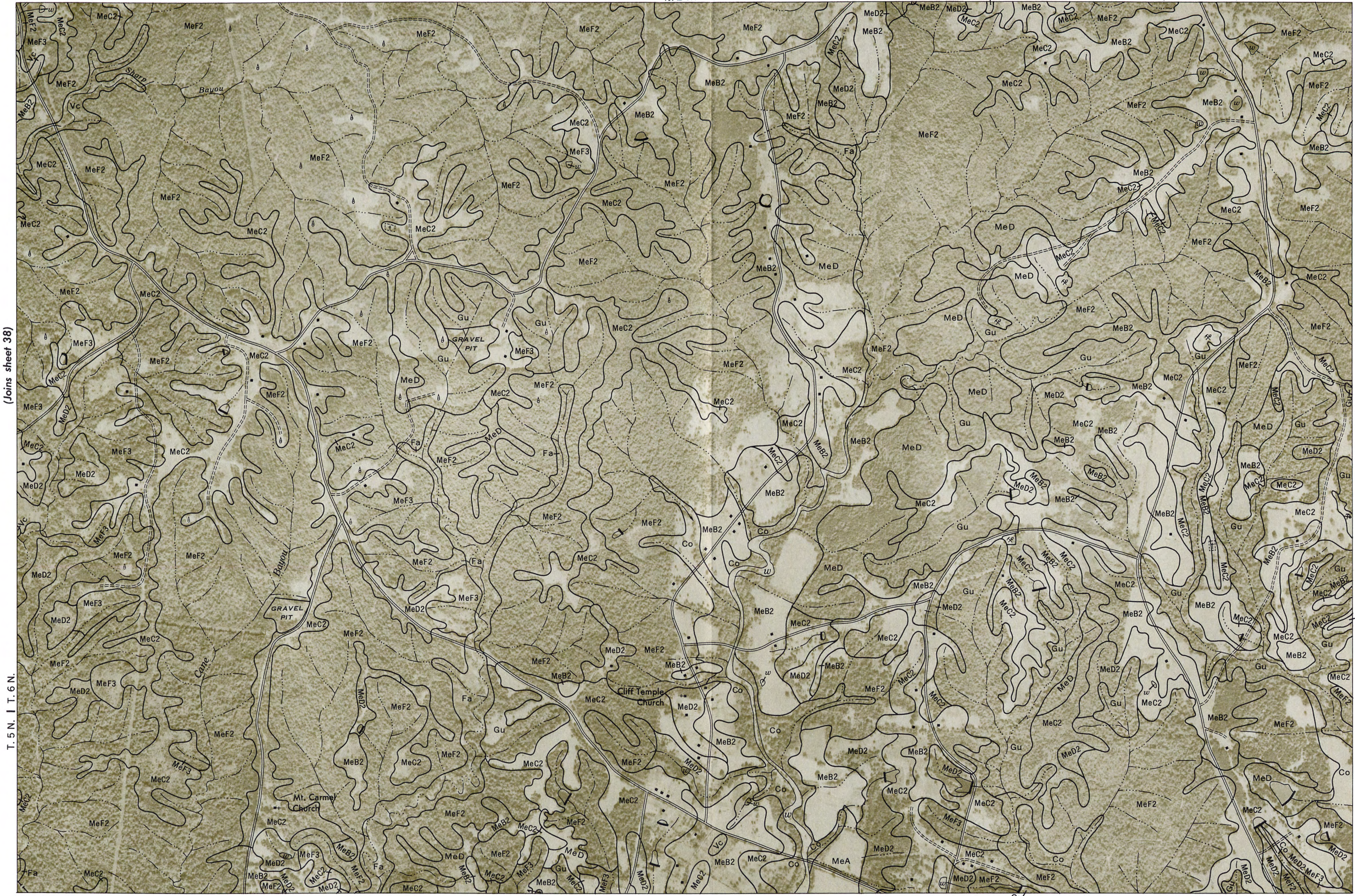
R. 2 W.

(Joins sheet 33)

(Joins sheet 38)

(Joins sheet 40)

T. 5 N. | T. 6 N.



(Joins sheet 46)

0 ½ 1 Mile Scale 1:15 840 0 5 000 Feet

(Joins sheet 34)

R. 2 W. | R. 1 W.

N

(Joins sheet 39)

(Joins sheet 41)

T. 5 N. | T. 6 N.

(Joins sheet 47)

0 ½ 1 Mile Scale 1:15 840 0 5 000 Feet

(Joins sheet 35)

R. 1 W.

(Joins sheet 40)

T. 5 N. | T. 6 N.

(Joins sheet 48)

0 ½ 1 Mile

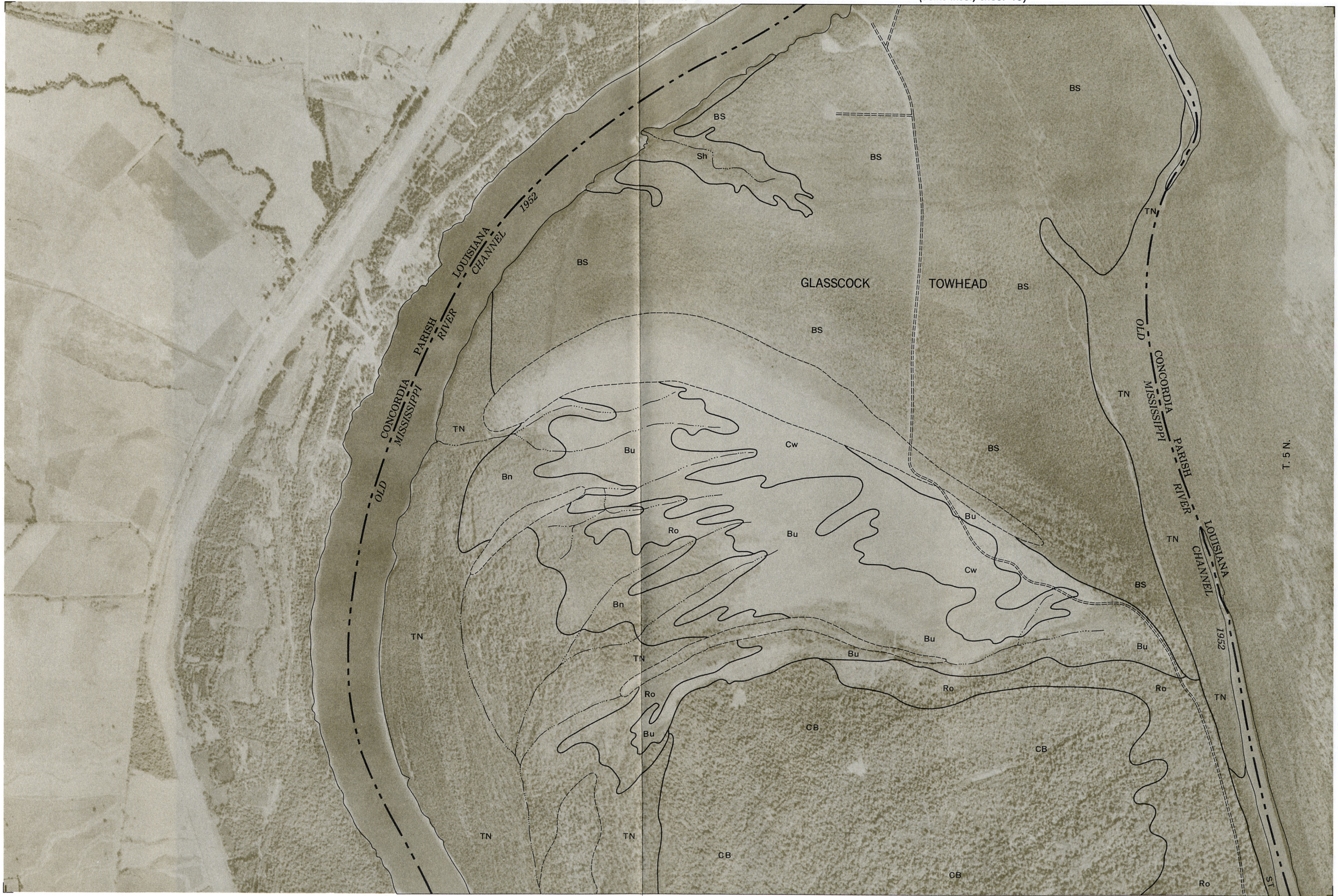
Scale 1 : 15 840

0 5 000 Feet

R. 4 W.

(Joins inset, sheet 43)

N



0 ½ 1 Mile

Scale 1 : 15 840

0 5 000 Feet

(Joins sheet 49)


(Joins sheet 36)
R. 4 W. | R. 3 W.
43
N
CB
Ro
ST
CB
TN
Cw
ST
w
Ro
ST
CB
Cw
Ro
CB
w
T. 5 N.
MISSISSIPPI
CONCORDIA
Cw
CB
PARISH
w
Ro
RIVER
LOUISIANA
Cw
(Joins sheet 44)
R. 4 W.
T. 5 N.
PARISH
LOUISIANA
RIVER
CHANNEL
CONCORDIA
MISSISSIPPI
OLD
Sh
BS
(Joins Sheet 42)
0
½
1 Mile
Scale 1 : 15 840
0
5 000 Feet

(Joins sheet 37)

R. 3 W.

(Joins sheet 43)

(Joins sheet 45)

T. 5 N.

(Joins sheet 51)

0 ½ 1 Mile

Scale 1:15 840

0 5 000 Feet

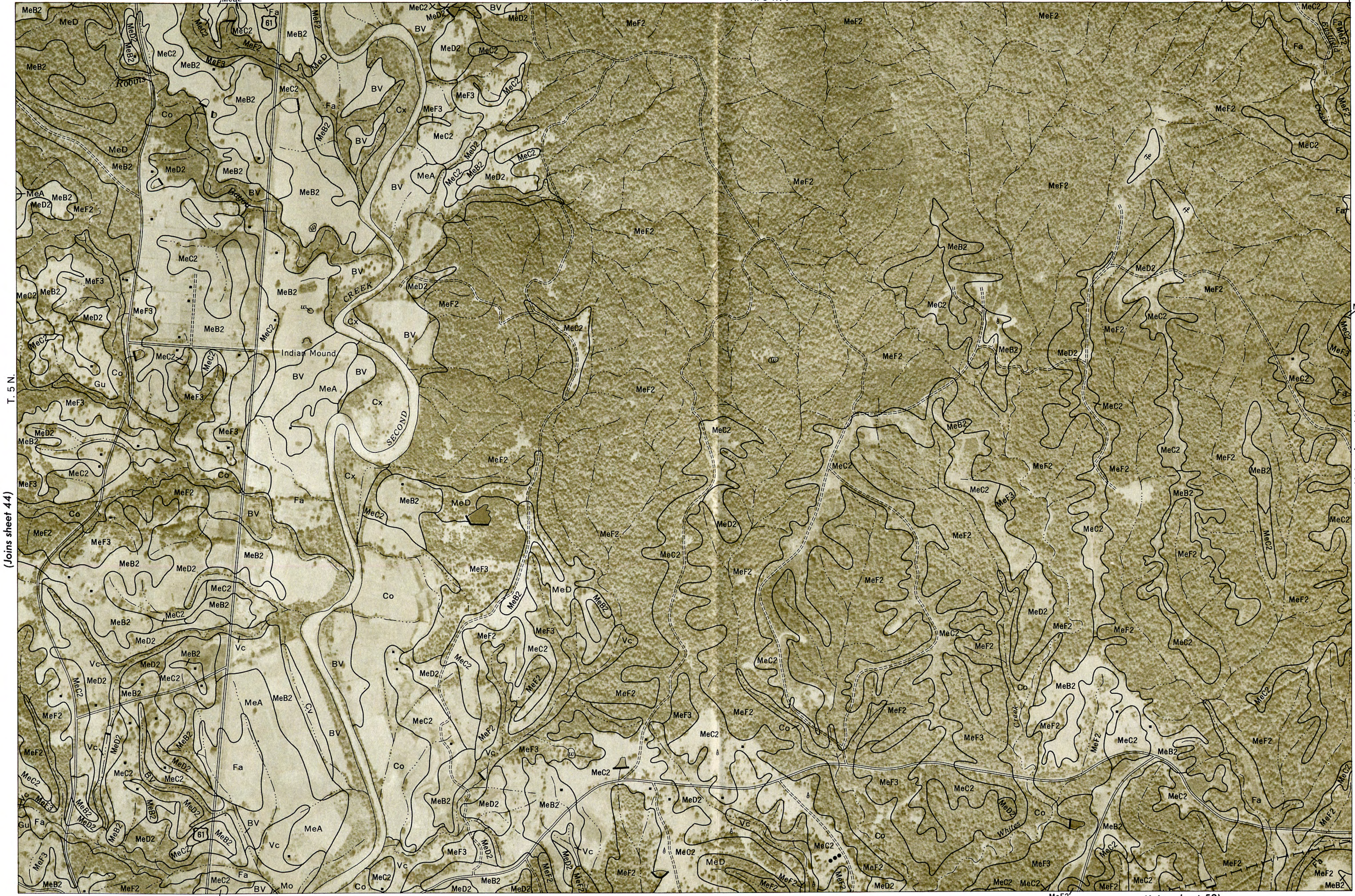
R. 3 W. | R. 2 W.

(Joins sheet 38)

45

ADAMS COUNTY, MISSISSIPPI NO. 45

(Joins sheet 44)



(Joins sheet 46)

(Joins sheet 52)

0 ½ 1 Mile

Scale 1:15 840

0 5 000 Feet

46

(Joins sheet 39)

(Joins sheet 45)

(Joins sheet 47)

(Joins sheet 53)

0 ½ 1 Mile

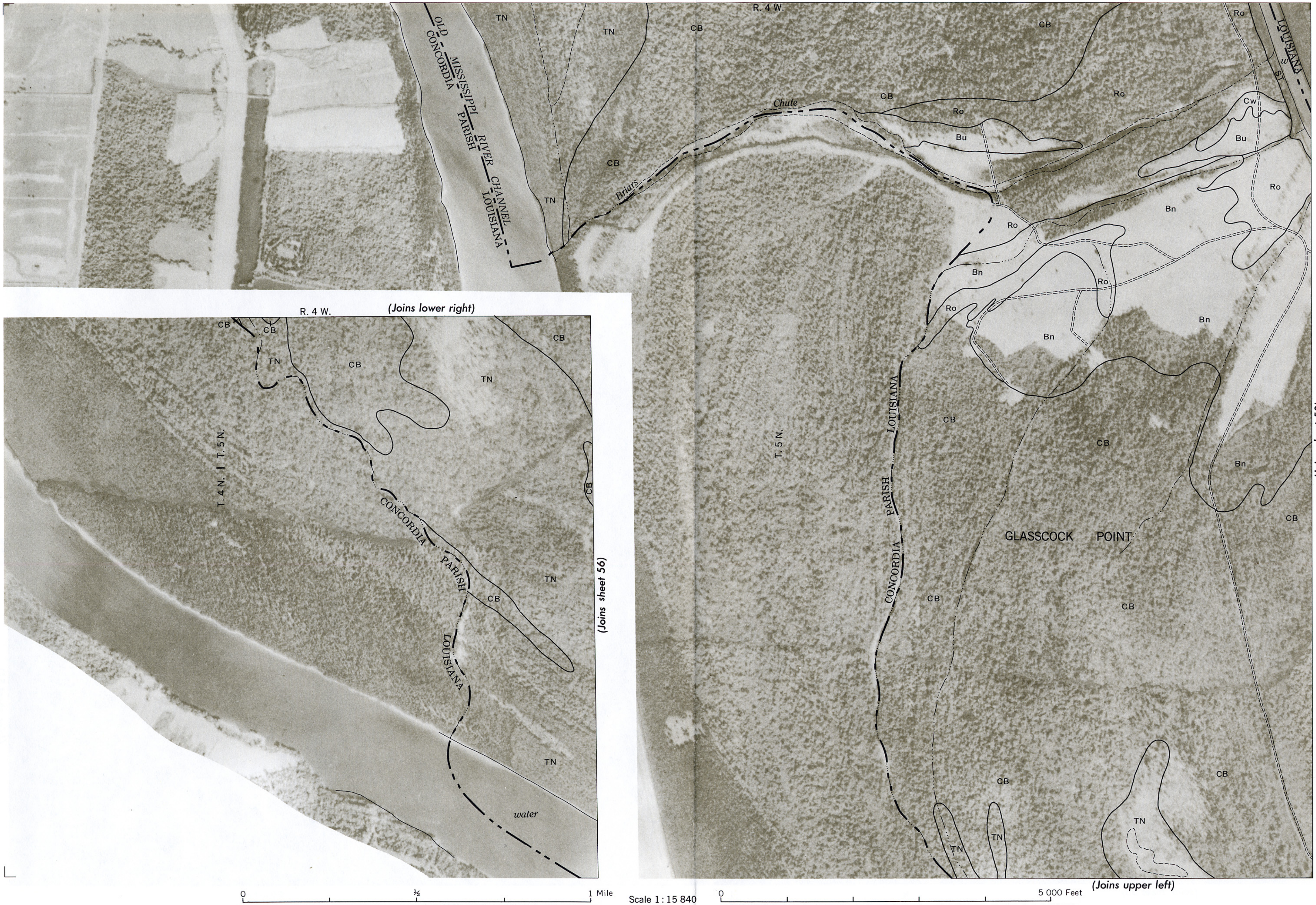
Scale 1:15 840

0 5 000 Feet

ADAMS COUNTY, MISSISSIPPI NO. 46

0 ½ 1 Mile Scale 1 : 15 840 0 5 000 Feet


(Joins sheet 41)
R. 1 W.
N
(Joins sheet 47)
(Joins sheet 55)
T. 5 N.
FRANKLIN COUNTY
HOMOCHITTO NATIONAL FOREST
Levees
Creek
Pretty
Cr.
LME
MGE
MSE
FF
BV
MeC2
0
½
1 Mile
Scale 1 : 15 840
0
5 000 Feet



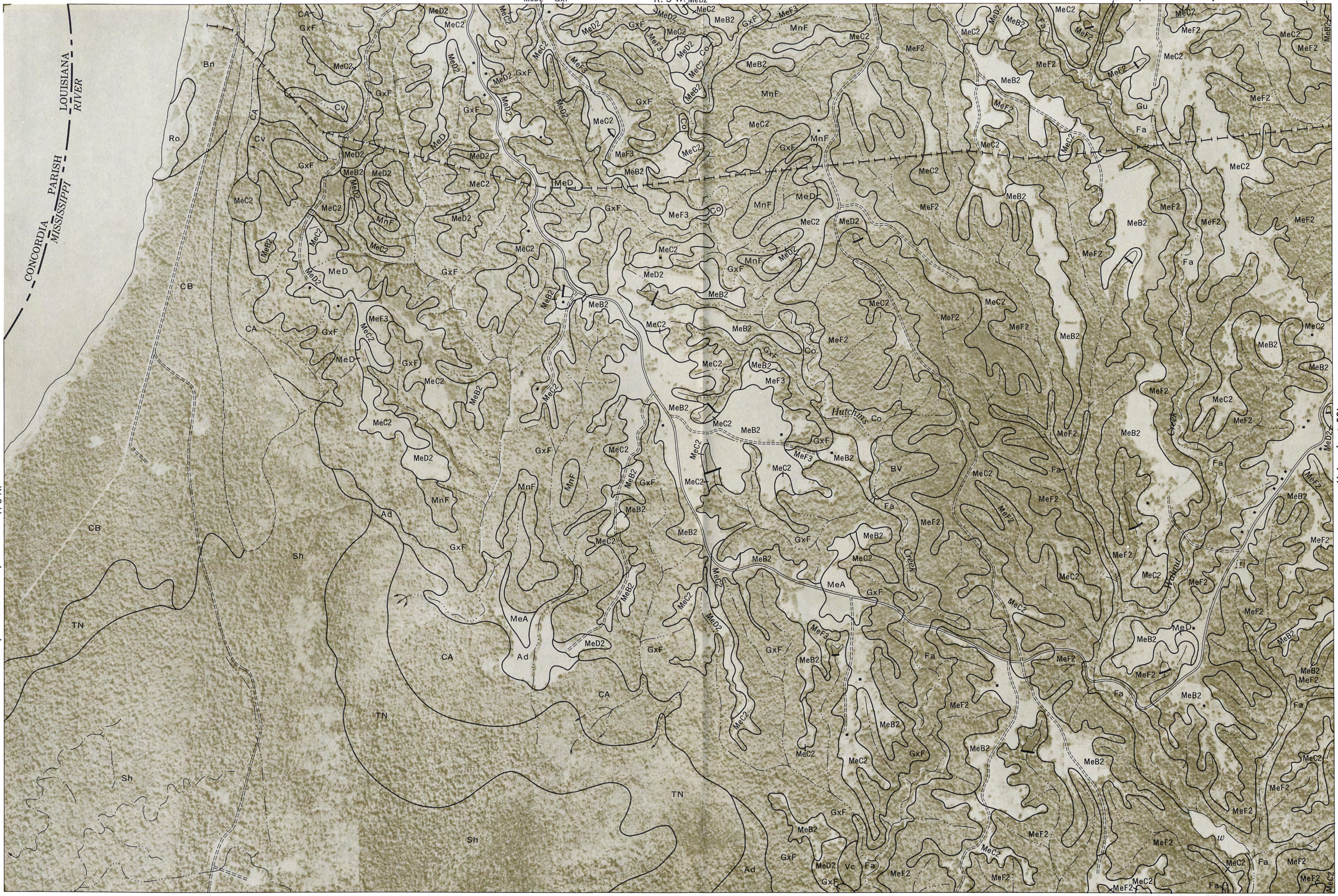
Scale 1 : 15 840

R. 4 W. | R. 3 W.
N
Ro
ST
Bn
OLD
MISSISSIPPI
RIVER
CHANNEL
1952
ST
CB
ST
ST
CB
CB
CB
CONCORDIA PARISH
LOUISIANA
Cw
Cv
CB
RIVER
MISSISSIPPI
CB
CB
TN
TN
Sh
CB
CB
CB
T. 5 N.
(Joins sheet 49)
(Joins sheet 51)
(Joins sheet 56)
0
½
1 Mile
Scale 1 : 15 840
0
5 000 Feet

(Joins sheet 44)

51

R. 3 W.



(Joins sheet 50)

T. 5 N.

(Joins sheet 52)

(Joins sheet 57)

0 ½ 1 Mile

Scale 1:15 840

0 5 000 Feet

(Joins sheet 45)

R. 3 W. | R. 2 W.

N

(Joins sheet 51)

(Joins sheet 53)

(Joins sheet 58)

0 ½ 1 Mile

Scale 1: 15 840

0 5 000 Feet

(53)

R. 2 W.

(Joins Sheet 46)

(Joins sheet 52)

(Joins sheet 54)

(Joins sheet 59)

0 ½ 1 Mile

Scale 1 : 15 840

0 5 000 Feet

54

0 ½ 1 Mile Scale 1:15 840 0 5 000 Feet

0 ½ 1 Mile

Scale 1 : 15 840

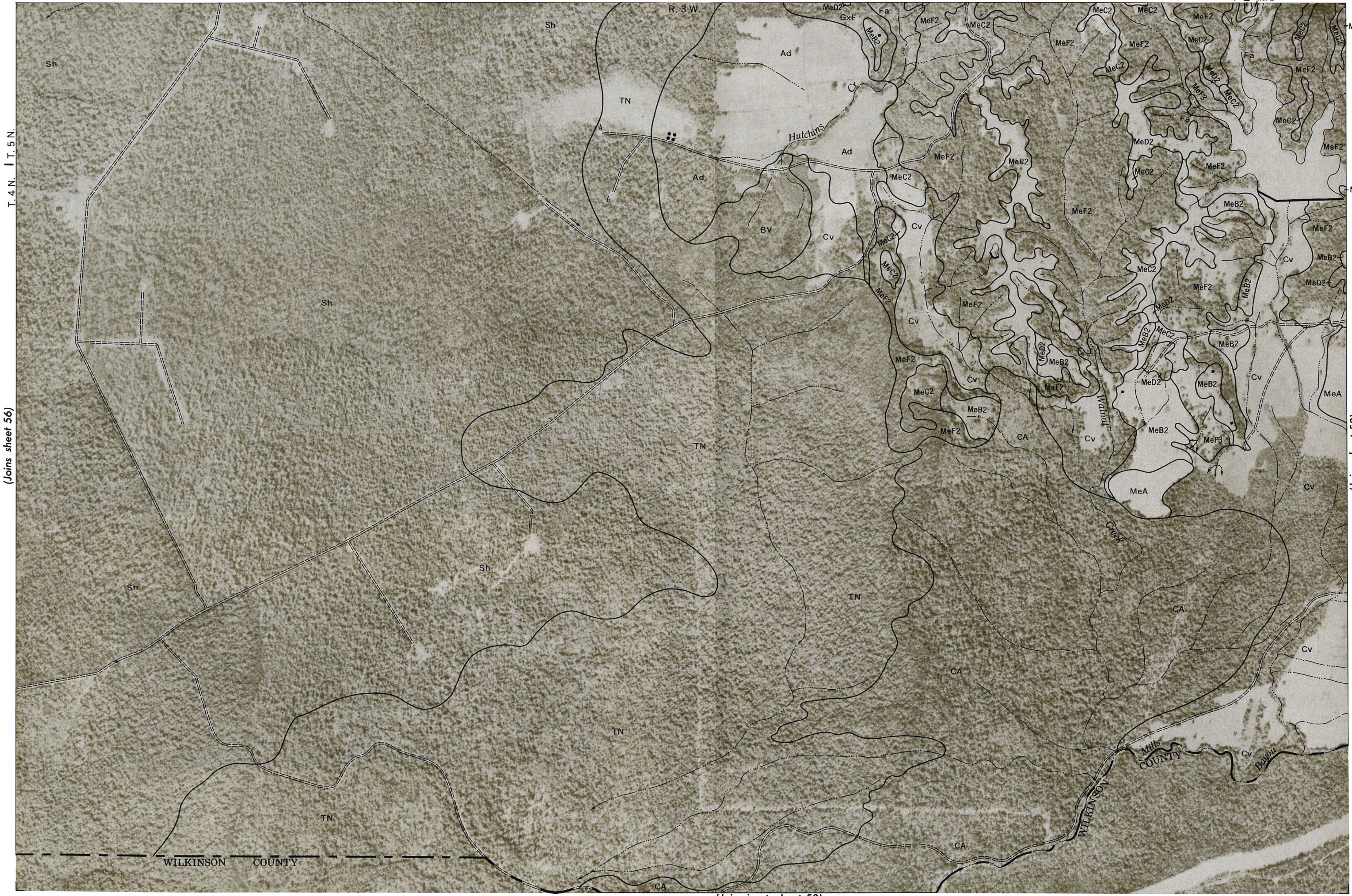
0 5 000 Feet


(Joins sheet 50)
R. 4 W. | R. 3 W.
N
T. 5 N.
T. 4 N.
(Joins inset, sheet 49)
(Joins sheet 57)
(Joins sheet 60)
GLASSCOCK POINT
GLASSCOCK CUTOFF
MISSISSIPPI RIVER
OLD MISSISSIPPI RIVER CHANNEL 1952
CONCORDIA PARISH
LOUISIANA
Cypress Bayou
CB
TN
Sh
ST
CA
0
½
1 Mile
Scale 1 : 15 840
0
5 000 Feet

(Joins sheet 51)

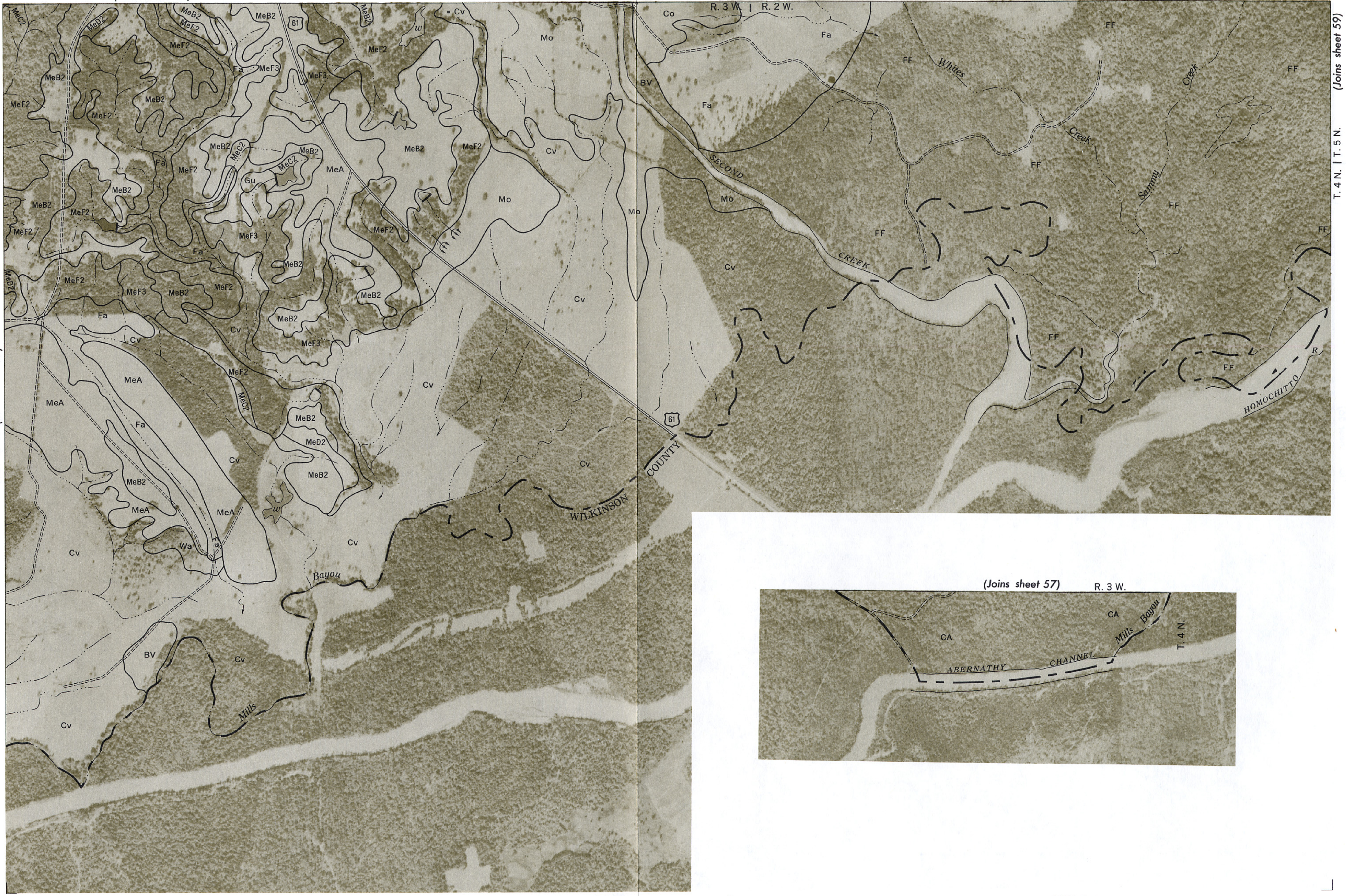
57

ADAMS COUNTY, MISSISSIPPI NO. 57

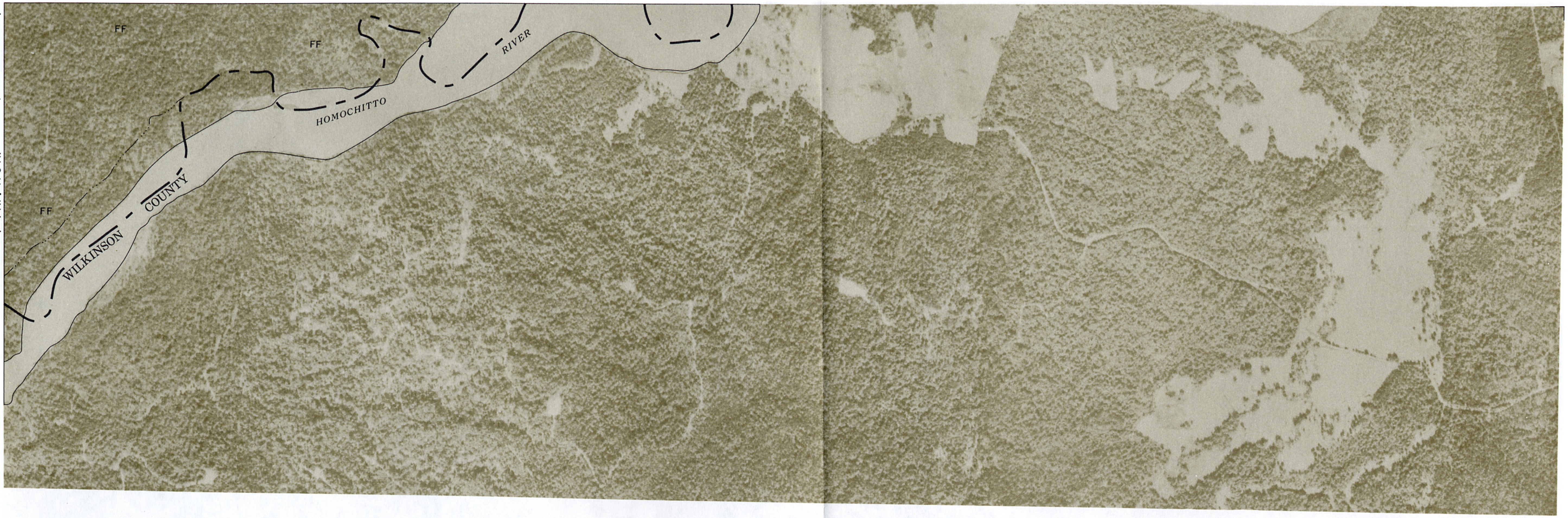


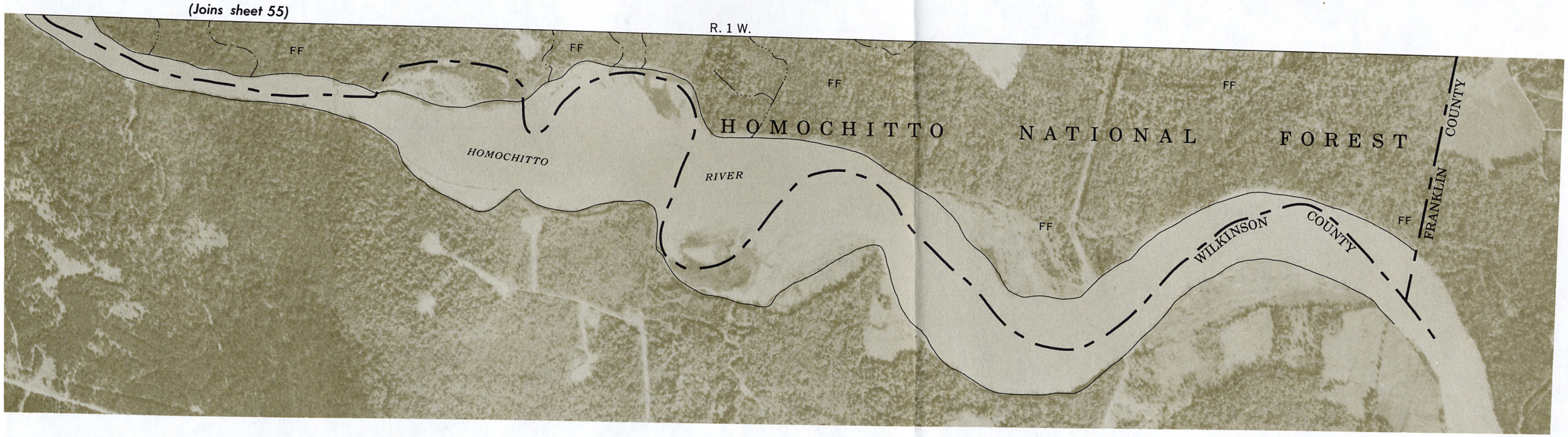
(Joins inset, sheet 58)

0 ½ 1 Mile
Scale 1 : 15 840
0 5 000 Feet


(Joins sheet 52)
(Joins sheet 57)
(Joins sheet 59)
N
R. 3 W. | R. 2 W.
T. 4 N. | T. 5 N.
61
SECOND CREEK
Whites Creek
Sammy Creek
HOMOCHITTO R
WILKINSON COUNTY
Mills Bayou
MeB2
MeC2
MeD2
MeF2
MeF3
MeA
Fa
Gu
Cv
Mo
Co
BV
FF
Wa
0
½
1 Mile
Scale 1 : 15 840
(Joins sheet 57)
R. 3 W.
T. 4 N.
CA
ABERNATHY CHANNEL
Mills Bayou
0
5 000 Feet

N



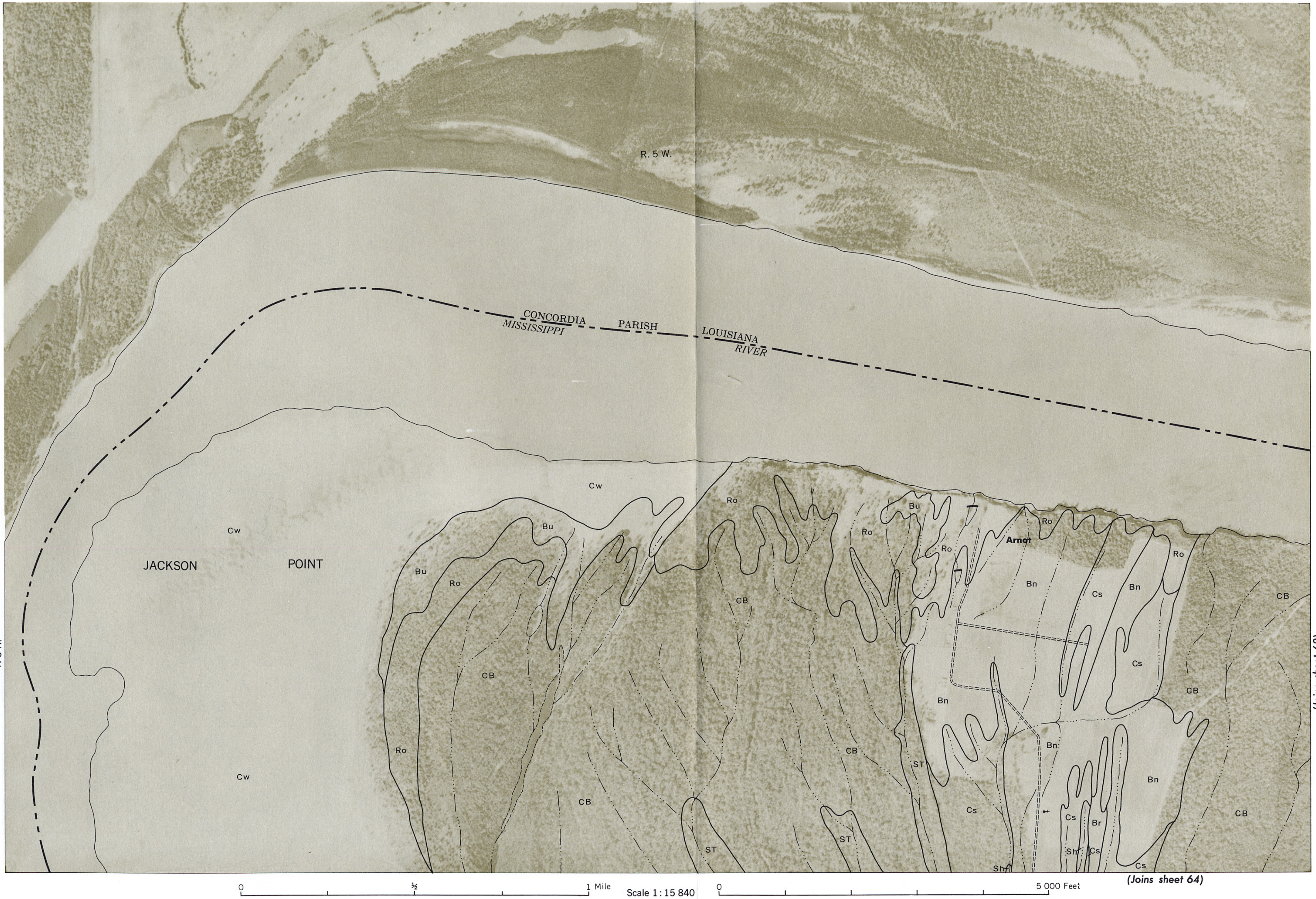


0 ½ 1 Mile

Scale 1 : 15 840

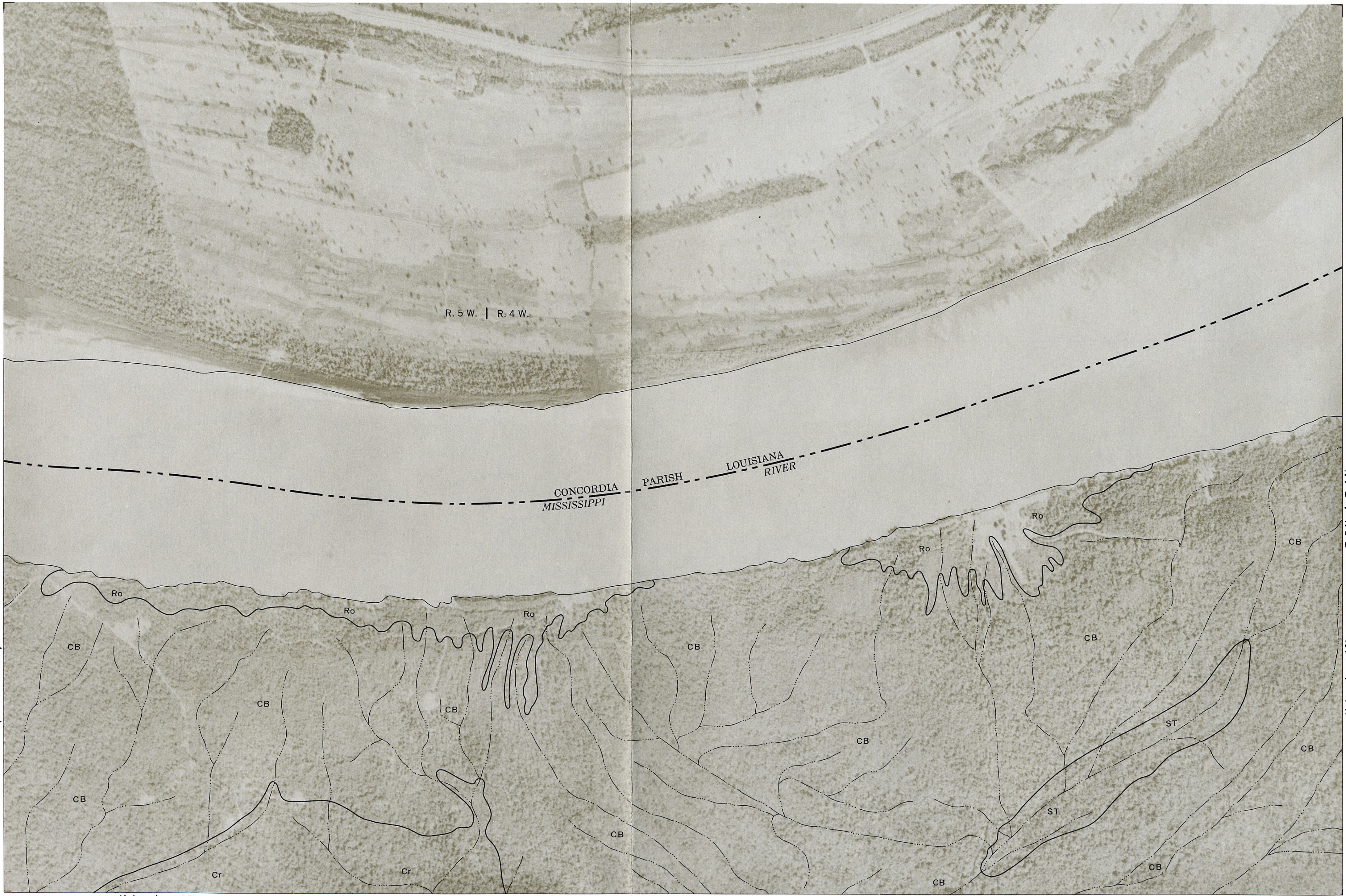
0 5 000 Feet

0 ½ 1 Mile Scale 1:15 840 0 5 000 Feet


N
R. 5 W.
CONCORDIA PARISH LOUISIANA
MISSISSIPPI RIVER
T. 3 N.
JACKSON POINT
Cw
Bu
Ro
CB
ST
Arnot
Bn
Cs
Br
Sh
(Joins sheet 62)
(Joins sheet 64)
0
½
1 Mile
Scale 1:15 840
0
5 000 Feet

62

N



T. 3 N. | T. 4 N.

(Joins sheet 61)

(Joins sheet 63)

(Joins sheet 65)

0 ½ 1 Mile

Scale 1 : 15 840

0 5 000 Feet

(Joins sheet 60)
R. 4 W.
(Joins sheet 62)
(Joins sheet 66)
T. 3 N. | T. 4 N.
CONCORDIA PARISH LOUISIANA
MISSISSIPPI RIVER
WEST FORK HOMOCHITTO RIVER
WILKINSON COUNTY
N
CB
Cx
ST
0 ½ 1 Mile
Scale 1: 15 840
0 5 000 Feet

N

R. 5 W.

(Joins sheet 61)

T. 3 N.

(Joins sheet 65)

(Joins inset, sheet 65)

0 ½ 1 Mile Scale 1:15 840 0 5 000 Feet


R. 5 W.
R. 4 W.
(Joins sheet 62)
N
T. 3 N.
(Joins sheet 64)
(Joins sheet 66)
(Joins upper right)
OLD RIVER LAKE
WILKINSON OR COUNTY LAKE MARY
THE NARROWS
CB
Cr
ST
R. 5 W.
(Joins sheet 64)
(Joins lower left)
T. 3 N.
MISSISSIPPI RIVER
CONCORDIA PARISH LOUISIANA
THE NARROWS
WILKINSON COUNTY
0
½
1 Mile
Scale 1 : 15 840
0
5 000 Feet

(Joins sheet 63)

0 ½ 1 Mile Scale 1 : 15 840 0 5 000 Feet